# Health Care Financing

## Research and Demonstrations in Health Care Financing 1978 - 1979



Published by the Health Care Financing Administration

# Health Care Financing Research and Demonstrations

The Health Care Financing Administration was established to combine health financing and quality assurance programs into a single agency. HCFA is responsible for the Medicare program, Federal participation in the Medicaid program, the Professional Standards Review Organization program, and a variety of other health care quality assurance programs.

The mission of the Health Care Financing Administration is to promote the timely delivery of appropriate, quality health care to its beneficiaries—approximately 47 million of the nation's aged, disabled, and poor. The Agency must also ensure that program beneficiaries are aware of the services for which they are eligible, that those services are accessible and of high quality, and that Agency policies and actions promote efficiency and quality within the total health care delivery system.

HCFA's Office of Research, Demonstrations, and Statistics (ORDS) conducts studies and projects that demonstrate and evaluate optional reimbursement, coverage, eligibility, and management alternatives to the present Federal programs. ORDS also assesses the impact of HCFA programs on health care costs, program expenditures, beneficiary access to services, health care providers, and the health care industry. In addition, ORDS monitors national health care expenditures and prices and provides actuarial analyses on the costs of current HCFA programs as well as the impact of possible legislative or administrative changes in the programs.

This report describes intramural and extramural projects conducted by ORDS. It is intended to provide succinct and timely information to a broad audience concerned about health care financing and delivery issues.

# Research and Demonstrations in Health Care Financing, 1978-1979

Compiled by Trudi W. Galblum

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Health Care Financing Administration
Office of Research, Demonstrations,
and Statistics

# Foreward

The Health Care Financing Administration (HCFA) supports a major research and demonstration program to find the most cost-effective methods of providing quality health care to its beneficiaries. This report describes the intramural and extramural projects of HCFA's Office of Research, Demonstrations, and Statistics (ORDS). The current status of each project is included.

ORDS activities focus on the most effective and efficient means of achieving HCFA's three principal objectives:

- To ensure the effective administration of HCFA programs to promote the timely delivery of appropriate, quality health care to HCFA beneficiaries, the aged, disabled, and poor of this country;
- To make certain that beneficiaries are aware of the services for which they are eligible and that those services are accessible to them and are provided in the most effective manner; and
- To ensure that HCFA policies and actions promote efficiency and quality within the total health delivery system which serves all Americans. This requires a constructive relationship with providers and third parties involved in that system.

To promote these objectives, ORDS identified nine areas of primary interest. These include beneficiary studies and statistical activities, health systems organization, hospital reimbursement, industrial organization and reimbursement, integrated data systems, long-term care, physician reimbursement, program evaluation, and quality and effectiveness. This report is organized into chapters which parallel these areas.

This report is intended to provide succinct and timely information about the design and results of ORDS activities to a broad audience concerned about health care financing and delivery issues. Comments and inquiries concerning this report should be directed to: Health Care Financing Administration, ORDS Publications, Room 1E9, Oak Meadows Building, 6340 Security Boulevard, Baltimore, Maryland, 21235.

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## General Introduction

In fiscal year 1978, the Health Care Financing Administration (HCFA) financed over $43.3 billion, or one-quarter, of the nation's health bill. In pursuing its goal to deliver quality health care to its beneficiaries efficiently and economically, HCFA supports an extensive range of activities to analyze factors underlying rising health care costs and to develop improvements to HCFA programs. The purpose of this report is to describe the studies, demonstrations, statistical activities, and program assessments being conducted or recently completed by HCFA's Office of Research, Demonstrations, and Statistics (ORDS). These activities play a major role in HCFA's efforts to improve the efficiency, economy, and coordination of the nation's health care delivery system.

If recent trends continue, economists predict that national health expenditures will reach 10.5 percent of the Gross National Product in 1985.[1] Over one quarter of this bill will be paid by HCFA's Medicare and Medicaid programs. Medicare, established under Title XVIII of the Social Security Act, is a Federal health insurance program for persons 65 years of age or older, disabled individuals, and persons with chronic renal disease. Federal trust funds, general revenues, and beneficiary premiums finance Medicare's Hospital Insurance (HI) and Supplemental Medical Insurance (SMI) programs.

Under Medicaid, Title XIX of the Social Security Act, States may enter into agreements with the Department of Health and Human Services (DHHS) to finance health care services for public assistance recipients and other low-income individuals and families. Federal, State, and, in some cases, local allocations finance this program. In 1978, approximately 26 million persons were eligible for Medicare benefits and 22.8 million were eligible for Medicaid benefits; of these, four million were eligible under both programs.

HCFA was established in March 1977 to better coordinate the expanding Federal role in health care financing and delivery. By consolidating the Medicare, Medicaid, and Professional Standards Review Organization (PSRO) programs, HCFA was expected to provide leadership in the Federal effort to plan, develop, administer, and evaluate health care financing programs and policies.

Within HCFA, ORDS directs over 200 intramural and extramural projects that study, demonstrate, or evaluate reimbursement, coverage, eligibility, and management alternatives to the present Federal programs. ORDS also assesses the impact of these programs on health care status, costs, utilization, expenditures, beneficiary access to services, health care providers, and the health care industry. In addition, ORDS monitors national health care expenditures and prices and provides actuarial analyses on the costs of current HCFA programs, as well as on the impact of possible legislative or administrative changes in the programs.

These activities are carried out by four ORDS components. The Office of Research (OR) conducts and supports research on health care providers, reimbursement, beneficiary access, and utilization. OR publishes program statistics about Medicare and Medicaid, with emphasis on expenditure patterns by type of service, beneficiary characteristics, and costs of care. Program evaluation activities are also managed by OR.

The Office of Demonstrations and Evaluations (ODE) funds and offers technical assistance to pilot programs which test new ways of delivering and financing health care. These demonstrations and evaluations encompass the spectrum of health care financing issues: alternative health care delivery modes, prospective reimbursement, rate regulation, ambulatory services, capitation payment systems, and standardization of billing and reporting procedures. New ideas and hypotheses are empirically tested in operational settings, such as hospitals and nursing facilities, health maintenance organizations, and State rate-setting programs. Subsequently, independent evaluations are performed.

The Office of Financial and Actuarial Analysis (OFAA) conducts HCFA's actuarial program and directs the development and methodologies for actuarial and macroeconomic analysis of health care financing issues. Major OFAA responsibilities include the preparation of the Annual Trustees Reports for the Hospital Insurance and Supplementary Medical Insurance Programs under Medicare and the compilation and publication of data on national health expenditures and private health insurance plans. OFAA also performs actuarial, economic, and demographic studies to predict Medicare and Medicaid program expenditures under current law and proposed modifications, and to identify the impact of various factors on health care costs. OFAA provides program estimates for use in the President's Budget and by the Congress and determines various Medicare program parameters such as deductibles and premiums. In addition, OFAA combines economic, demographic, statistical, and actuarial skills, with personnel acting as technical consultants in the development of major health policy initiatives, such as national health insurance (NHI).

The Office of Statistics and Data Management manages computer services for selected aspects of the Medicare and Medicaid programs. This office produces statistical information for research and actuarial activities.

The information generated by financial analyses, research, demonstrations, and evaluations serves as a basis for key decisions on policy and legislative issues and often leads to changes in HCFA's operating programs and authorizing legislation.

### ORDS Publications Program

ORDS conducts a publications program to disseminate data, research, and demonstration findings. Consisting of seven series, these publications serve the needs of legislators, policymakers, researchers, program officials, and private industry.

[1] *The United States Budget in Brief, Fiscal Year 1981*. p. 48.

The *Health Care Financing Review* is a quarterly research journal, focusing on the findings of research, demonstrations, and statistical analyses. The *Review* presents program data and results of significant research on a variety of topics, including hospital cost containment, physician reimbursement, long-term care reform, fraud and abuse, health systems organizations, and quality of care. In addition, the *Review* features Medicare and Medicaid program statistics on beneficiary enrollment, provider reimbursement, program expenditures, Early and Periodic Screening Diagnosis and Treatment (EPSDT) child screening, and abortions and sterilizations. Announcements of new HCFA research publications, program evaluations, and grants and contracts are also contained in the *Review*.

*Health Care Financing Trends* is a quarterly report on the state of the Nation's health dollar. It presents summary statistics on total health expenditures, medical care prices, hospital expenses and utilization, physician pricing, and comparisons of health with national economic indicators. *Trends* represents the only national health expenditures information, similar to other national statistics such as the GNP, which is available on a quarterly basis.

The *Health Care Financing Notes* provide descriptive statistics on the Medicare and Medicaid programs in a brief, concise format, as well as offering abstracts of future publications. The *Notes* provide the public with program data as soon as it becomes available.

The *Health Care Financing Program Statistics* series presents detailed data and analyses on the Medicare and Medicaid programs. While the *Health Care Financing Notes* highlight program data as soon as they become available, *Program Statistics* present in-depth reports on the programs. Included in these reports are Medicare data on enrollment, providers, and reimbursement, as well as Medicaid data on eligibility, services, and expenditures. The Medicaid data include statistics on recipients by eligibility category, as well as medical assistance payments by vendor, type of service, program category, and form of payment.

*Health Care Financing Research Reports* present major intramural studies and projects conducted by HCFA staff. The *1978 PSRO Program Evaluation* is an example of a report published in this series. Soon to be published is *Ten Years of Short-Stay Hospitals Used by the Aged Under Medicare*. Future reports will discuss physician fees and prices, development of hospital reimbursement limits adjusted for case-mix, and evaluations of the maximum allowable cost for drugs (MAC), end-stage renal disease (ESRD), and EPSDT programs.

*The Health Care Financing Grants and Contracts* series makes available the final reports of ORDS-funded extramural projects in such areas as hospital cost containment, long-term care reform, physician reimbursement, fraud and abuse, beneficiary access and utilization of services, and health systems organization. Recently published reports include findings from research and demonstration projects concerning medical procedural terminology systems, the influence of capital expenditures on hospital operating costs, rate-setting for prepaid Medicaid contracts, physician reimbursement and hospital use in health maintenance organizations (HMOs), physician pricing in California, and hospital classification systems.

Occasional monographs, such as *Research and Demonstrations in Health Care Financing,* are prepared to meet selective information needs. Other types of monographs planned include conference proceedings on physician financial incentives and health insurance plans.

Copies of all ORDS publications can be obtained from the Research Publications Staff, (301) 597-2422.

# Chapter I
# Beneficiary Studies and Statistical Activities

## Introduction

ORDS prepares a wide variety of statistical and analytical reports and studies on the utilization and reimbursement of health care services financed by Medicare and Medicaid. Particular emphasis is placed on patterns and trends, access and equity, and the degree to which services are provided efficiently and economically. Many of these reports are produced on a recurring basis; others represent analyses of special issues. Most reports are developed from ORDS' claim-based Medicare and Medicaid statistical systems, augmented by special efforts such as the National Medical Care Utilization and Expenditures Survey.

The central administration of the Medicare program at the Federal level has permitted the development of a uniform multi-purpose data base which serves the needs of planners, researchers, and policymakers. State administration of the Medicaid program, however, has resulted in 50 different data systems to meet each State's individual needs. Adoption of the Medicaid Management Information System (MMIS) has alleviated some of the problems in collecting comparable, quality data on the Medicaid program; however, there still exists a need for coordinating this information at the Federal level in a manner that is useful to a wide audience. One of ORDS' major efforts since the establishment of HCFA has been the development of a National Medicaid Statistical System consisting of person-level claims and eligibility data. As the Medicare statistical system has enabled ORDS researchers to conduct numerous analytical studies, so the new Medicaid statistical system is expected to provide the basis for in-depth investigations of medical assistance programs.

In addition to focusing attention on Medicare and Medicaid program and beneficiary statistics, ORDS also produces reports dealing with the private health insurance industry and national health expenditures. Data from ORDS' private health insurance survey are used to adjust the Consumer Price Index several times each year, while health planners use health expenditures data to determine the amount of resources needed in their communities.

Taken together, ORDS statistical reporting, program analyses, and data development activities are designed to provide cross-sectional and longitudinal information about the dynamics of the health care system.

## Statistical Reports

### *Medicare Data*

#### Enrollment

Data on the number of Medicare aged and disabled beneficiaries by residence, age, race, sex, and coverage under Medicare hospital insurance (HI), supplemental medical insurance (SMI), or both, are analyzed and published annually in this report. The population also includes persons eligible because of end-stage renal disease.

#### Characteristics of Participating Providers

Using the Medicare provider-of-service files, detailed data are developed, analyzed, and published triennially on the number, types, characteristics, and geographic distribution of hospitals, skilled nursing facilities, home health agencies, and independent laboratories participating in the Medicare program. A combined report for 1975 to 1977 is under development. A less detailed report is prepared on an annual basis. The report for 1979 is expected in 1980.

#### State and County Reimbursement

This report contains annual data at the county level within States on all Medicare benefit payments under HI and SMI for aged, disabled, and end-stage renal disease beneficiaries. Reports have been published for the years 1966 through 1977. The 1978 report will be published in 1980.

#### Person Summary Statistics

A summary of the Medicare HI and SMI program benefits on a persons-served basis is published annually. Tabulations show persons using reimbursed services and the amounts paid under the programs by type of benefit and age, race, sex, and State of residence of the beneficiaries. Reports are available for the years 1966 through 1969; the report containing 1973 and 1974 data has also been published. This edition includes, for the first time, data on disabled persons using reimbursed services and amounts paid under HI and SMI in the various categories. The reports for 1975 and 1976 will be published in 1980.

#### Utilization of Home Health Services

This series of annual reports includes data on Medicare benefit payments for home health services under HI and SMI. The data presented show the demographic characteristics and geographical location of persons served, in addition to furnishing utilization data according to type of agency and services. The 1975 report has been published. The reports for 1976 and 1977 will be published in 1980.

### Utilization of Short-Stay Hospital Services

These reports present data and analyze utilization of short-stay hospitals by aged Medicare beneficiaries. They provide detailed figures on the number and rate of discharges and days of care, average length of stay, hospital charges, amounts reimbursed under the Medicare program, and the number of persons with multiple hospital stays during the year. Selected utilization measures and reimbursement data are shown by age, race, sex, and residence of Medicare beneficiaries, and by provider characteristics such as type of control, bed size, and accreditation. The reports for 1976 and 1977 will be published in 1980.

### Preliminary Reports of Medicare Program Statistics

A new series of tabulations has been developed to provide preliminary data on basic aspects of the Medicare program at the State level. This series is intended to provide a timely report of program experiences that would be useful to a wide range of users. Among the subjects to be covered by these tabulations are enrollment, providers of service, utilization and reimbursement for services furnished by short and long-stay hospitals, skilled nursing facilities, home health agencies, hospital outpatient departments, and physicians. Separate tabulations for aged and disabled beneficiaries and annual data indicating trends supplement the report. These tabulations are being published in 1980.

## *Medicaid Data*

### Current Medicaid Reports

Collection, processing, and publication of statistical data on the Medicaid program are ongoing ORDS activities. Monthly and annual reports on aggregated data are submitted by State agencies that administer the program. Two series of publications are produced from these data, which are developed at the State level using a variety of computer processing systems.

The current monthly report, entitled "Medicaid Statistics," consists of information on program expenditures by form of payment, type of service, and recipient. It also enumerates eligibility expenditures by form of payment, type of service, recipient, and eligibility status. Special sections of the report document the number of children receiving screening services under the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program and furnish quarterly statistics on the number of individuals undergoing sterilization or abortion.

The annual statistical report on medical care contains more detail than the monthly report. For example, recipients of medical care are cross-classified by age, sex, race, and type of service received. Recipients of inpatient services are cross-tabulated according to days of care received and eligibility. In addition, the annual report contains details on the number of drug prescriptions and physician visits, program expenditures for persons who receive both Medicaid and Medicare services, and an aggregate picture of the expenditures for and recipients of the Medicaid program.

### Abortion Reporting System

To improve the timeliness and accuracy of the reporting of those abortions involving Federal monies, the abortion reporting system has been changed. The previous form, HCFA-58, has been integrated with a major financial reporting form, HCFA-64. This change will improve the timeliness of the quarterly reports and, in the long term, the correspondence of the statistical and financial reports. This system provides the number of abortions by State and justification for each abortion.

### Medicaid Minimum Data Set

The evolution of the Medicaid program has significantly changed the data needs of the audiences that draw information from the Medicaid reporting system. Consequently, an extensive effort was initiated in 1976 to revise the monthly and annual Medicaid data reports. This initiative, called the Medicaid Minimum Data Set Project, has made significant changes in data that will be reported beginning in fiscal year 1980.

When implemented, new reporting forms will provide information on the number and type of providers participating in the program, the number of persons eligible for the program, and the number of claims processed. In addition, the revised form will improve the correspondence between the categories used in this and other Federal reporting systems in such areas as definitions of race, age, and provider type.

### Medicaid Third-Party Liability Survey

Federal law requires liable third-party payers (i.e., insurance companies) to be the primary source for medical payments, allowing Medicaid to reimburse remaining fees for its beneficiaries. Therefore, States are required to have third-party recovery programs. In order to improve these programs, the General Accounting Office recommended in May, 1977 that the Social Security Administration (SSA) collect third-party eligibility information in those States where SSA is responsible for determining Medicaid eligibility. A joint HCFA-SSA task group was formed in October, 1978 to study the value of this information to the States after SSA questioned the recommendation.

In early 1979, the task force recommended that a survey of States be conducted to determine information requirements for the third-party system. ORDS is participating in the task force to provide technical advice on the design of the study. A three-step sequential approach has been proposed. First, a questionnaire would be distributed to the States to determine the number of Medicaid beneficiaries to be covered by the SSA-collected information. Then a determination would be made as to whether this would be useful to the States. Secondly, a sample study would be planned for the receptive States, to establish the amount of money paid by Medicaid for which third parties are liable. A final study, if justified, would be undertaken to determine the cost and value of collecting the information.

*Health Care Financing Data*

National Health Expenditures

This annual report documents the dollar volume of national expenditures for health care. Estimates are based on available expenditure data sources from the perspective of both providers and users of health care services and supplies.[1] Analysis focuses on the type of services utilized and the methods used to finance them. Trends in expenditures and financing are examined with attention to factors associated with them. Compilations of data since 1929 are published periodically in more detail than the annual reports in the *Compendium of National Health Expenditure Estimates.*

Private Health Insurance Plans

Private health insurance plays a major role in the financing of health care in the United States. Examination of its impact in terms of both enrollment and financing is accomplished through data collection analysis. ORDS conducts intramural studies of the private health insurance market and prepares an annual article containing estimates and analyses of the number of people enrolled in each kind of plan for two broad age groups: persons under 65 and those 65 and over.[2] Several aspects of the private health insurance market, such as types of plans and the extent of coverage for various demographic groups and services, are analyzed.

ORDS actuaries also prepare quarterly health insurance estimates on Blue Cross/Blue Shield, private insurers, and independent plans, focusing on premiums earned, claims incurred, and operating expense. The net cost of private insurance is also noted in the quarterly estimates of national health care expenditures and used by the Bureau of Labor Statistics to develop the medical care component of the Consumer Price Index.

Nationwide Survey of Independent Prepaid and Self-Insured Plans

The enrollment, coverage, and financial experience of private health insurance organizations must be studied to understand the full scope of health insurance coverage of the population. Independent prepaid and self-insurance plans represent an important segment of the overall health insurance industry. Westat, Inc. of Maryland is conducting a four-part survey that began in October, 1977 to obtain accurate estimates of the number of persons served by health insurance plans other than those offered by Blue Cross/Blue Shield and other insurance companies. Under this four-year ORDS contract, Westat is also collecting data on benefit expenditures of such plans for various health care services, operating expenses, utilization data, and methods of health care delivery. A mail census of 1,700 independent plans was completed in September, 1979. ORDS will analyze and report the conclusions of this survey in a published monograph. Survey data will form the basis for HCFA's national estimates of the extent of these plans.

**Beneficiary Data Base Development**

*National Medical Care Utilization and Expenditure Survey*

The National Medical Care Utilization and Expenditure Survey (NMCUES) is under joint development by ORDS and the National Center for Health Statistics. The survey, planned for implementation in 1980, will serve as a continuing source of person-based data on the patterns of use and the costs and sources of payment for health care services used by Medicare and Medicaid beneficiaries and all other non-institutionalized persons not covered by Medicare or Medicaid. Data on the patterns of medical service utilization and costs for persons residing in long-term care institutions will be studied in another survey planned for 1981.

The survey will consist of quarterly interviews with a national probability sample of 6,000 households and four separate State Medicaid family surveys with 1,000 families each. Data will be collected on the type and source of health care services used, charges, sources of payment, socio-demographic characteristics of persons and their economic resources, health status, barriers to care, disabilities, and limitations of activities.

Following the household interviewing phase, an administrative record survey will also be conducted for Medicare and Medicaid beneficiaries to compare claims data acquired through the administrative system with those obtained in the surveys. Information from these three data sources will be analyzed to determine the optimum strategy for future data collections.

Analyses based on the survey data will focus on utilization patterns of the non-institutionalized civilian population and the degree to which Medicare, Medicaid, and other insurers cover the costs of health care services. The research should also identify areas of unmet health care needs among specific groups in the population, suggest administrative, policy, and legislative initiatives to meet such needs, and provide a continuing source of data to measure trends and the impact of new initiatives. Initial reports on the first six months of NMCUES survey data are scheduled for late 1981.

*Development of a National Medicaid Statistical System*

The aggregate data provided by the current Medicaid reporting system does not address a variety of

[1] Gibson, R.M., "National Health Expenditures, 1978," *Health Care Financing Review,* Volume 1, No. 1, Summer 1979, pp. 1-36.

[2] Carroll, M.S. and R.H. Arnett, "Private Health Insurance Plans in 1977: Coverage, Enrollment, and Financial Experience," *Health Care Financing Review,* Volume I, No. 2, Fall 1979, pp. 3-22.

important issues and questions. For instance, the current system is not useful when disaggregated, person-based data are required for analyses (such as the calculation of utilization rates). In order to improve the information available, ORDS has begun a major initiative to develop a Medicaid data base on the national level, consisting of person-level claims and eligibility data drawn from State Medicaid Management Information System files. This data is to be supplemented with eligibility information which provides denominator information required for rate estimation.

The pilot phase of this project, scheduled for completion in late 1980, addresses the data compatibility, statistical, and data processing problems associated with this effort. The utility of the Medicaid Quality Control System for such purposes will be explored simultaneously. The desired data base will eventually provide the same information as the current aggregate reporting system, as well as a significant amount of new information, particularly in the area of person-based utilization measures by beneficiary and provider type.

*Continuous Medicare History Sample*

ORDS is implementing a new Medicare data base, the Continuous Medicare History Sample (CMHS) that has capabilities beyond existing Medicare data systems. Data bases currently in operation generally relate to a single Medicare benefit, such as short-stay hospitals or home health care for a single year.

The new CMHS will provide a longitudinal, statistical, data base to study the use of all Medicare benefits by using a five percent sample of Medicare beneficiaries. The system provides for the linkage of records of every Medicare service used by each beneficiary included in the file. Services received since 1974 are to be included in the file. As new beneficiaries come into the program, a proportionate number will be included in the CMHS. Beneficiaries already in the sample remain in the file each year, enabling their experience to be traced through time.

For services under the Hospital Insurance program (Part A), utilization data will include dates of admission and discharge from hospitals and skilled nursing facilities (SNFs), diagnoses, procedures, and charges, Initially, data from the Supplemental Medical Insurance program (Part B) will be limited to type of service received and reimbursement made, but will later include number and site of services. Among the new avenues of research made possible by the CMHS are longitudinal studies of benefit utilization and non-utilization and studies to analyze effects of hypothetical changes in the benefit structure or cost-sharing requirements.

At present, three studies are planned when the data file is complete. The first will examine benefit utilization and non-utilization for a cohort of beneficiaries who entered the Medicare program in 1974. The second study will examine total benefit costs for selected diagnoses. The third study will examine the cost of illness in the last year of life.

*Medicare Provider Analysis and Review*

The second edition of the *Medicare Provider Analysis and Review* (MEDPAR-2) provides information about the use of short-stay hospital services by Medicare beneficiaries on hospital and area-wide levels. MEDPAR-2 is a revision of MEDPAR-1, which was primarily intended for use by Professional Standards Review Organizations (PSROs). MEDPAR-2 has been designed for use by both PSROs and by Health Systems Agencies (HSAs).

The MEDPAR sample data cover several variables associated with hospital stays of Medicare patients aged 65 and over. These variables include discharge status (alive or dead), surgical status (with or without surgery), selected primary discharge diagnoses, selected surgical procedures, patients' age, sex, and race, and the day of discharge. Tables also show the distribution of discharges by length-of-stay intervals, hospital characteristics, hospital charges, and the proportion of discharges and days of care utilization by long-stay cases.

The set of 21 MEDPAR tables displays different aspects of Medicare utilization. When arrayed by hospitals within areas, each table focuses on specific variables to provide hospital and area-wide profiles of patient mix and utilization. The hospital-level profiles can help identify particular hospitals with patient mixes or utilization patterns that differ substantially from other hospitals in the area. Similarly, the area profiles can be compared with regional and national data. MEDPAR-2 reports are available by PSRO and HSA area for 1974 through 1977.

*Data for Health Planning from Medicare Statistical Systems*

In response to the creation of a national network of HSAs by the 1974 Health Planning and Resources Development Act, ORDS has developed data from the Medicare statistical system to meet the needs of health planners. Medicare data have a number of inherent advantages for planning uses, including national coverage, low cost (compared to special surveys), production on a continuing basis, availability of data on the population at risk, and a sample size large enough for meaningful estimates at the health service area level. Four data packages available to HSAs on the local area level are as follows:

- Enrollment data provide information on the number and characteristics of Medicare beneficiaries and may be used to estimate the total population, age 65 and over, residing in that area. The data also provide the denominator for calculation of utilization rate.
- The MEDPAR reports give hospital and health service area level profiles of hospitals use and can be used to identify hospitals or areas with patterns of utilization different from others.
- Data on hospital utilization rates can be used to study both cross-sectional and longitudinal patterns of health services use.

- Patient flow data, a package designed especially for planners, provides information on the origin of patients served by hospitals in a health service area (patient origin data) and on sites at which residents of a health service area receive care (patient destination data). These data can be used to help define boundaries for hospital service areas and to estimate the effect of changes in hospital supply in one area on hospital use in other areas. Patient destination data are available on the health service area level, and patient origin data are available on the health service area, hospital/county, and, in some cases, hospital/zip code levels. Patient destination data at the hospital/county level are now being developed.

New efforts in the area of health planning data will include developing reimbursement data by health service area, production of a "Users' Guide" to Medicare data for health planning, and increased efforts to disseminate information about the nature of Medicare data and its uses in planning.

**Program Analyses**

*Analysis of Physician Services Under Medicare Part B*

A major study in progress is the analysis of several aspects of physician services reimbursed under Medicare Part B. The study uses a new data base generated from claims processed by Medicare carriers for a five percent sample of beneficiaries throughout the nation. Although the data set does not include information on specific procedures performed, it does provide a greater depth of information than was previously available from the payment record system. The study provides an overview of the findings for 1975 services. Two analyses from the study are nearing completion: 1) geographic variations in use and reimbursement for physicians' services and 2) assignment rates and beneficiary burden. Preliminary findings indicate wide geographic variations in the rate of assignment as well as wide variations by specialty in the rate of assignment. Nearly 70 percent of the users have some liability from unassigned claims, and nearly ten percent have liability of $100 or more from such claims.

*Ten Years of Short-Stay Hospital Use by the Aged Under Medicare*

This report presents a statistical review of Medicare program data on aged HI beneficiaries discharged from participating short-stay hospitals between 1967 and 1976. Data present and analyze cover characteristics of aged beneficiaries discharged from short-stay hospitals, participating providers of service, and trends and patterns related to utilization, charges, and reimbursements. The analysis focuses on the impact of the Medicare HI short-stay hospital program on the aged population. The effects of HI expenditures on the structure and size of national health care expenditures and the escalation of hospital costs are also examined. The study has been completed and results will be published in 1980.

*Analysis of Variations in Hospital Use by Medicare Patients in PSRO Areas*

This report analyzes the use of short-stay hospitals by Medicare beneficiaries aged 65 and over.[3] Using data obtained from the Medicare statistical system, the report presents rates of hospital utilization based on the population at risk for use of services in a defined group of hospitals. A methodology used for estimating the population-at-risk is presented. It adjusts for patient migration among PSRO areas.

During the period 1974-1977, discharge rates increased in every HHS region and in 93 percent of the PSRO areas. On the other hand, average length of stay (ALOS) decreased in every HHS region and in 95 percent of the PSRO areas. The data indicate that ALOS decreased as much or more in areas where ALOS was initally low in comparison with areas where it was higher. The rate for days of care remained relatively constant during this period. Furthermore, the relative rankings of the regions of the rate for days of care remained constant. Extremes in ALOS are reflected in the days-of-care rate; analysis of PSRO areas with the highest or lowest days-of-care rates indicates that these areas had extremely high or low average lengths of stay in most cases.

The data indicate large variations in hospital use in PSRO areas within States and regions and suggest that factors within the area are also critical determinants of hospital use. Area characteristics generally expected to bear some relation to hospital use were examined as possible factors contributing to variations in hospital use measures. Significant relationships between several of these variables, including supply of physicians and hospital beds, indicate that factors other than physician and hospital behavior influence the levels of hospital use. These results suggest that PSROs in areas greatly above or below utilization norms should look to variations in supply variables, as well as physician practice patterns, for explanation.

*Analysis of the Changing Patterns of Short-Stay Hospital Discharge Rates*

ORDS is investigating the changing patterns in discharge rates across the nation. This study focuses on the two factors which determine discharge rate for all States cross-sectionally and longitudinally from 1974 to 1977: (1) user rate (number of persons hospitalized per 1,000 beneficiaries) and (2) multiple stay rate (number of discharges per user). Final results will be available in 1980. Preliminary findings indicate that increased multiple hospitalization is an important factor contributing to the overall rise in the discharge rate from 1974 to 1977. There is also evidence of marked geographic variations in the increase in rates of readmissions. Increasing readmission rates and subsequent increasing discharge rates are important

[3] Deacon, R., J. Lubitz, M. Gornick, and M. Newton, "Analysis of Variations in Hospital Use by Medicare Patients in PSRO Areas, 1974-1977," *Health Care Financing Review*, Volume 1, No. 1, Summer 1979, pp. 79-107

factors to consider in relation to hospital cost inflation. Although average lengths of hospital stay are decreasing over time, increases in discharge rates over time may outweigh any decreasing effects upon hospital cost, since costs per day are generally higher during the earlier period of a stay.

*Trends in the Incidence of Short and Long Hospital Stays in the Medicare Program*

High incidence of very short or long stays in acute care hospitals may indicate unusual patterns of hospital use. In order to study variations in the incidence of such stays for Medicare beneficiaries, the distribution of hospital discharges by length of stay was examined longitudinally from 1967 to 1976 for the nation and cross-sectionally by PSRO area for 1976.

From 1967 to 1976, the incidence of short stays of three days or less underwent the largest percentage increase of any length of stay interval, increasing by 64.6 percent. This figure was roughly twice the 29.8 percent increase in the overall discharge rate. This finding raises questions about the nature of the changes in medical practices that account for such a large increase in short stays by persons aged 65 and over.

The rate of very long stays of 29 days or more declined 23.1 percent. However, such cases still accounted for nearly one-quarter of all days of care in 1976. Considerable variation was found when the incidence of short stays of three days or less was examined by PSRO area. In high incidence areas, 22 to 30 percent of all Medicare cases are discharged within three days. Most of the areas with high rates of short stays are in the Midwest and West and contain large rural areas.

The rate of long stays (29 days or more) among PSRO areas in 1976 also varied considerably. Most of the high rate areas were found in New York and New Jersey. In these areas, long-staying patients account for up to half of all days of care, raising questions about the difficulties with post-hospital placements. A report on the study is being prepared for publication in the summer of 1980.

*Use of Hospital Outpatient Services*

Two reports on this subject will be published in 1980, one covering the use of hospital outpatient services by the aged and the other covering the disabled. The reports examine variations in utilization, covered charges, and reimbursements of hospital outpatient services by age, race, sex, and residence in 1975 for both beneficiary groups. The report on the aged will present data showing the number of aged beneficiaries using reimbursed outpatient services and the amounts reimbursed from 1967 through 1975. The report indicates that outpatient reimbursement for the aged has grown faster than any other covered service between 1967 and 1975. This trend is expected to continue, with an increasing percent of the Medicare dollar supporting outpatient services. The report indicates that hospital outpatient departments in metropolitan areas are an important source of primary health care for minorities. Aged persons of minority races had higher hospital outpatient user rates and higher average charges per user in metropolitan areas than did whites. The report for the disabled discusses a similar range of topics and includes a discussion of the benefits used by persons with end-stage renal disease.

*The Use of Prescription Drugs by the Aged, 1967-1977*

Between 1967 and 1977, the Current Medicare Survey collected data on the use of prescription drugs by the aged. Drugs used by beneficiaries as patients in hospitals and skilled nursing facilities are covered by Medicare under HI. Prescription drugs used by Medicare beneficiaries on an outpatient basis are not covered. This report examines trends in the outpatient use of, and charges for, prescription drugs by aged beneficiaries during the years 1967-1977. Demographic differences are examined, as well as the economic burden placed on aged persons by the need for drugs relative to other medical expenses and income. The study shows that drug expenses have remained a fairly constant portion of aged persons' income during the entire period. Publication of the study is planned for 1980.

*Patterns of Mortality of Medicare Beneficiaries*

Studies of the relationship between health care and mortality are possible due to the ability to link mortality information from the Medicare enrollment files with health care utilization data in claims files. Files linking these two kinds of data are now being prepared, and two initial studies are planned. The first study will examine patterns of in-hospital mortality. This will be a longitudinal (1967 to 1970) and cross-sectional study of trends in the percent of deaths of Medicare beneficiaries occurring in hospitals. The social and financial implications of variations in the place of death will be investigated. The second study will focus on post-surgical mortality. The Medicare beneficiary mortality experience for selected procedures following surgery will be examined to explore the factors influencing surgical mortality rates.

*Small Area Variations in Use of Hospital and Ambulatory Medical Care Services*

Under a one-year research grant awarded in October, 1978, Dartmouth Medical School is testing the hypothesis that small area differences in health care use rates and expenditures are correlated with physician specialty and other health care services supply and composition characteristics. This hypothesis implies that studies of variations in expenditures must examine physician and other supply factors, in addition to organizational and procedural inefficiencies and price factors. As an initial analysis of a potential five-year project, this study focuses on causes of

cross-sectional variations and changes over time in costs, utilization, and reimbursement under Medicare Parts A and B in Vermont, Maine, and Massachusetts.

*Use of Medicare Services in Colorado*

Stanford Research Institute (SRI) will use part of a three-year grant, awarded in October 1978, to analyze use of Medicare service in Colorado. Using Medicare paid claims from Colorado Blue Cross/Blue Shield from 1974 to 1978, SRI will investigate such issues as the change in physician pricing and service behavior following the consolidation of 10 geographic reasonable charge areas, the differences in utilization of services for Medicare beneficiaries with and without private complementary insurance, utilization patterns for joint Medicare-Medicaid eligibles, and out-of-plan utilization levels of Kaiser Medicare beneficiaries.

*Medical Care Utilization Before and After Medicare*

This study will assess medical care utilization of the elderly before and after the advent of Medicare. It is based on data from a two-part survey of the elderly performed by the School of Public Health and Administrative Medicine of Columbia University and the National Opinion Research Center at the University of Chicago. The survey periods covered April/May 1965 to April/May 1966 and November/December 1966 to November/ December 1967, respectively. The sampling frame for the pre-Medicare survey consisted of Old Age and Survivors Insurance (OASI) beneficiaries aged 65 and older as of December 31, 1965. A similar frame was used for the post-Medicare survey. Notable exceptions in both of these frames were those eligible for OASDI but not receiving benefits for reasons of wage earnings above the program limit.

A tentative finding is that while economic variables did determine a certain percentage of medical care utilization before and after Medicare implementation, the impact of the economic variables significantly decreased after the introduction of Medicare. This study will be completed in 1980.

*Impact of Medicare on the Use of Medical Services by Disabled Beneficiaries*

The Social Security Amendments of 1972 extended Medicare coverage to persons who were entitled to cash benefits under the disability insurance program for at least 24 months. Coverage was effective in July of 1973. In order to measure the effects of Medicare coverage on approximately two million people, two samples of 2,000 persons each were interviewed in 1972 and 1974 to compare utilization of medical services before and after coverage. The data from monthly interviews included information on utilization and charges incurred for medical services during each year, as well as several demographic and socioeconomic characteristics of the sample panel.

According to the findings, a higher proportion of disabled beneficiaries used covered services in 1974 than in 1972, although the average number of services used did not increase. Significant increases occurred in the proportion of beneficiaries using physician services in outpatient departments and physicians' offices. Almost 18 percent of all medical services in 1972 were provided by the Veterans Administration (VA) and Armed Forces. Even with the new Medicare payment source for medical care available in 1974, this group of users continued to utilize VA and Armed Forces services at about the same rate. Examination of the factors contributing to the large increase in charges incurred for Part B services indicates that the increase was due primarily to the large rise in the number of eligible beneficiaries and the increased physicians' charges.

If extensions of coverage to additional population groups are contemplated in the future, as they are in nearly all national health insurance proposals, careful consideration should be given to controlling price increases. In this analysis of Medicare coverage for the disabled, it is this factor, and not utilization, that was instrumental in pushing up total charges for medical services and, in turn, Medicare program costs. The results of this study were published in the fall 1979 issue of the *Health Care Financing Review*.[4]

*Analysis of ESRD Beneficiaries and Expenditures*

An analysis of end-stage renal disease (ESRD) beneficiaries and health care expenditures under the Medicare program for these individuals was conducted in October, 1979. Age, sex, and racial composition of ESRD beneficiaries, as well as length of time under the program, were examined. Expenditures were analyzed by type of service, total charges, beneficiary characteristics, and reimbursement and coinsurance amount. By examining time series data, the study documented changes in the ESRD program with regard to beneficiaries and Medicare expenditures.

Findings showed that total Medicare reimbursement for ESRD beneficiaries increased by 23 percent from 1974 to 1978 (i.e., $225 million to $744 million). This change was largely due to a rapidly increasing enrollment of 172 percent during the same time period. Per capita reimbursement increased by only 22 percent during this time ($14,525 per person in 1978); it appears that total ESRD reimbursements will rise at a rapid rate until enrollment stabilizes. By source of care, 25 percent of reimbursements are for inpatient care, 60 percent are for outpatient care (where most dialysis occurs), and 16 percent are for physician services. Patient survival analysis shows 50 percent of ESRD beneficiaries still living five years after becoming eligible for Medicare. By age, this varies from 80 percent survival for those aged 0 to 14 at onset of illness to 24 percent survival for those 74 and over at age of onset.

Information from the study will be updated at the end of 1980.

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[4] Deacon, R.W., "Impact of Medicare on the Use of Medical Services by Disabled Beneficiaries, 1972-1974," *Health Care Financing Review,* Volume 1, No. 2, Fall 1979, pp. 39-54.

## Consumer Understanding

Little is known about consumers' knowledge of their insurance policies or their opinions about the health care system. Many insurance policies are complex, excluding certain services, covering only limited quantities of others, or covering only a portion of the cost. Deductibles, coinsurance, and copayment vary in amount and applicability to services.

Although consumers' understanding of their policies has seldom been measured, varying requirements for out-of-pocket payments are known to affect use. This would indicate that consumers are somewhat knowledgeable about their health insurance policies. Consumer knowledge of insurance and the health care delivery system is the subject of a research grant awarded to the Rand Corporation in October of 1978. Rand has incorporated this analysis into its Health Insurance Study, which is designed to assess the potential effects of variation in the cost of health services.

The objectives of the grant are to: (1) measure consumer knowledge of health insurance plan benefits; (2) explain variations in understanding among different types of consumers; (3) determine the validity of previous studies; (4) ascertain whether consumers understand health maintenance organization benefits better than complex fee-for-service plans; and (5) assess consumer knowledge and attitudes about the efficacy of the medical care delivery system. Six geographic areas in four States have been selected as study sites.

Increased consumer knowledge of the medical care delivery system could contribute to more effective use of services, by evoking informed choices on the part of consumers and competition among providers.

## Changes in the Aged Population

Historically, the growth and aging of the elderly population have had major implications for the health care system. For example, it has been estimated that the increase in the number of the aged is the most important factor in the rapidly growing demand for nursing home care over the last two decades. Little research has considered the consequences of changes in the composition of the aged population on health care demand, costs, and financing. To provide more knowledge on this topic, ORDS awarded a three and a half year grant in October, 1978 to the Institute for Demographic Studies, Inc.

Researchers plan to assess the relationships and implications for the health care system of changes in the size, age structure, socioeconomic structure, and geographic distribution of the population aged 65 and over. Their hypothesis is that the level of configuration of future health care demands of the aged will differ significantly from present demands.

Initial conceptual work has been conducted to determine the best methods of predicting the future composition of the aged population by aging current samples of the non-aged population. This has been done by using mortality, migration, occupation, industry, and educational attainment trends to characterize the aged population in future years. Substudies are being initiated on the sociology of disease and the epidemiology of age.

The main thrust of this project is to help policymakers ensure that current policy actions will produce a medical care delivery system better able to meet the needs of future aged populations. Relationships found through this study and the resultant model should improve the accuracy of medical care utilization predictions for the aged and budgetary predictions for the Medicare Trust Funds and State Medicaid programs.

# Chapter II
# Health Systems Organizations

## Introduction

The introduction of Medicare and Medicaid in 1965 inaugurated many improvements in the nation's health care delivery system. Between 1965 and 1974 for example, access to care by the poor was facilitated, although it is not uniform for all groups.[1] At the same time, the Medicare and Medicaid programs must bear responsibility for contributing to unabated inflation in health care cost (9.1 percent of the Gross National Product in 1978).

Fee-for-service reimbursement to physicians and cost reimbursement to institutional providers, as mandated by Titles XVIII and XIX of the Social Security Act are generally agreed to have produced perverse incentives that increase program costs. Two approaches to reduce costs are feasible: either accept the essential features of the current system and attempt to modify incentives by developing alternative reimbursement methodologies, or institute fundamental changes in the delivery system by introducing alternatives to the pattern of episodic care provided primarily by acute care institutions. The former approach could include negotiated fee schedules for physicians or prospective reimbursement for institutions. Efforts to expand development of, and enrollment in, health maintenance organizations (HMOs), to shift the delivery of services such as minor surgery away from acute care settings, and to encourage the use of home dialysis are in line with the latter approach.

Demonstrations focus on the feasibility of alternative reimbursement methods for HMOs, the development of HMO enrollment incentives for Federal beneficiaries, the impact of expanding provider and service coverage, and the modification of the End Stage Renal Disease Program. Other avenues of exploration include expanded utilization of ambulatory facilities such as clinics, the enhancement of competition within the health care delivery system, alternative risk-sharing models, and preventive efforts such as the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program.

## Alternative Organizational Models

A growing number of health care professionals are advocating changes in the delivery system focusing not only on one class of provider or practitioner but on the organization and financing of the entire system. Perhaps the most well-known of these change strategies is the health maintenance organization (HMO). HMOs provide a comprehensive range of primary, acute, and tertiary care services to voluntarily enrolled populatons, in exchange for a prospective capitation payment.[2] Total costs for HMO enrollees are 10 to 40 percent less than for comparable persons with health insurance, with most of the savings realized through reduced use of hospital services.

Existing Federally-qualified HMOs enroll only two percent of the Federal beneficiary population. Program restrictions discourage the enrollment of Medicare and Medicaid beneficiaries in HMOs; these individuals have not been provided incentives to choose HMOs as their service providers. ORDS demonstrations and studies are designed to identify alternative means to expand Medicare and Medicaid enrollment in HMOs, as well as to encourage the development of other risk sharing arrangements.

### *Capitation Projects*

#### Prospective Risk Capitation Demonstrations

In May of 1978, HCFA issued a request for proposals (RFP) to develop and implement demonstrations in prospective risk capitation contracting for Medicare and Medicaid beneficiaries. The RFP was designed to support a number of initiatives in HHS, including increased HMO enrollments among Federal beneficiaries and the promotion of cost efficiency and competition in the health care marketplace. In addition to addressing these goals, the seven contracts awarded will test alternative prospective risk reimbursement methodologies under Medicare and Medicaid, demonstrate incentives to the Medicare and Medicaid populations to enroll by returning HMO savings as increased benefits and/or reduced cost-sharing, and reduce the costs of the Federally covered benefit packages by contracting for the same or expanded benefits at a rate lower than the average Medicare or Medicaid fee-for-service cost. These HMO projects are expected to increase HHS' experience with prepaid capitation contracting and provide needed information for policy planning and legislative recommendations.

Following 11 to 18 months of development, (which began in November, 1978), the demonstrations will continue for up to three years. Various approaches to organization, reimbursement, marketing, and risk-sharing will be explored. Three sites are Federally qualified HMOs, and two are awaiting qualification. While Kaiser, InterStudy, and Marchfield will provide services to Medicare beneficiaries only, the others may enroll Medicaid beneficiaries as well.

**Kaiser Health Plan** of Portland, Oregon, will test a reimbursment methodology based on 95 percent of the Average Adjusted per Capita Cost (AAPCC) in its area. The savings between the capitation rate and the adjusted community rate will be returned to beneficiaries in the form of increased benefits, reduced cost-sharing, or both. Kaiser will employ a variety of marketing approaches to attempt to identify enrollment incentives which are most effective.

**InterStudy** is applying a broker concept in the marketing of six HMOs (one Federally qualified) in Minneapolis. Scheduled for reimbursement at 95 percent of the AAPCC, these HMOs will compete for the target population through the use of increased benefits, reduced cost-sharing, and public education. This effort will enable HCFA to assess the impact of a more competitive marketplace on enrollment incentives as well as seeing how an identical reimbursement system affects different HMOs.

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[1] Davis, K. and C. Schoen, *Health and the War on Poverty: A Ten-Year Appraisal*, the Brookings Institute, Washington, D.C., 1978, pp. 18-48.

[2] Luft, H., "How Do HMOs Achieve Their Savings?" *New England Journal of Medicine*, June 15, 1978, Vol. 298, No. 24, pp. 1336-1361.

**Kitsap Physicians Service** of Bremerton, Washington, will offer Federal beneficiaries a benefit package providing additional services and/or reduced cost-sharing as incentives for enrollment. Kitsap's risk-sharing contract calls for it to absorb full loss and return all savings to the government or beneficiaries. Since all area practitioners and providers participate in this individual practice association, this project is expected to demonstrate provider capability to control utilization and costs of care for the Federal beneficiary population.

**Health Central** of Lansing, Michigan, involves a prepaid, full-risk contract offering additional benefits and reduced cost-sharing. The project is designed to test the ability of a newly Federally-qualified HMO to enroll the higher-risk Federal population. The project will apply the prepaid health research, evaluation, and demonstration (PHRED) actuarial rate-setting formula developed by the California Department of Health Services project under another HCFA grant.

**The Fallon Community Health Plan** of Worcester, Massachusetts, will enroll Medicare and Medicaid Old Age Assistance beneficiaries under a partial risk-sharing contract (to become fully risk-sharing by the end of the contract). Additional benefits will be offered as an enrollment incentive. The demonstration will test methods to adjust the community rate for the Medicare population, including the addition of currently non-covered services. As part of the marketing effort, the plan will test the effectiveness of a dual choice option between the expanded prepaid plan and the traditional Blue Cross Supplemental plan.

**Blue Shield of Massachusetts,** with the City of Boston, is organizing a new HMO around a city delivery system which includes Boston City Hospital and seven neighborhood health centers. Blue Shield hopes to market the Boston Community Health Plan to Medicare and Medicaid beneficiaries, as well as to Federal employees, municipal employees, private subscribers, and the near poor. The project will demonstrate a capitation and delivery model that serves as an alternative to the traditional, costly, urban health delivery system and which may have replication potential in other cities.

**Marshfield Medical Foundation** will assume full risk under a prepaid contract for Medicare beneficiaries in a rural area of central Wisconsin. Of interest will be the development and evaluation of methods used to adjust the community rate, plus the ability to enroll a high risk group in an existing, prepaid plan which includes all providers in the area.

A comprehensive, comparative evaluation by an independent contractor will study the effectiveness of the various incentives for enrollment and the cost savings to the Federal health programs and program beneficiaries in all of the above demonstrations. An RFP to conduct this evaluation is scheduled for release in 1980.

Group Health Cooperative (GHC) of Puget Sound

GHC is the first and only HMO in the country holding a risk-sharing contract under Section 1876(a)(3)(A) of the Social Security Act for provision of services to Medicare beneficiaries. GHC is testing the effects of two experimental variables in a risk-sharing HMO setting. One variable involves the waiver of the requirement that Medicare beneficiaries have three days of inpatient hospitalization prior to admission to a skilled nursing facility. This waiver permits an examination of utilization and cost patterns which could be improved through the efficient placement of patients based on assessed need rather than on current legislative requirements. Secondly, Medicare beneficiaries are permitted to receive reimbursable services that are neither emergency nor urgently needed outside the HMO plan. This will allow ORDS to examine the effects of waiving the lock-in restriction, which limits HMO enrollees to reimbursable services available within their plans (except for emergency services).

The results of the 15-month data collection period, which began in October 1976, indicate that the denial of claims for non-emergency and unreferred care resulted in financial hardship for Medicare beneficiaries and an increased administrative burden for GHC and other providers in the area. The two-year experimental waivers went into effect January 1, 1978. The University of Washington is evaluating the impact of these waivers.

Medically Needy Capitation Demonstrations

**Multnomah County (Oregon) Project Health** is an innovative health delivery system in which the county pools funds from a variety of sources and contracts for health care services with local providers and six prepaid plans (including two Federally-qualified HMOs). The services are available to county residents not covered by third-party insurance. HCFA has supported the medically needy population of the Project Health program since January, 1976 through Medicaid waivers approved under Section 1115. The purpose of the waivers was to permit the State of Oregon to test the effectiveness of the delivery system for the medically needy population to secure the passage of legislation for a Statewide medically needy program at the end of the project.

The county, through its Project Health Division, serves as a marketing agent and broker for the medically needy. This project has an enrolled population of more than 5,000, 2,200 of whom are medically needy. Originally scheduled to end in June of 1979, the project was extended for 12 more months to permit the development of a rate-setting methodology incorporating full risk to the county and to add the categorically needy population to the program.

Another demonstration with goals similar to Project Health is underway in Newark, New Jersey. The **Newark Comprehensive Health Services Project** was originally approved by the Secretary of DHHS in December, 1970. From that time until December 30, 1976, the project functioned at the planning level. It became operational in August 1977.

Section 1115 waivers were granted to the State Medicaid program for the creation of a consolidated, city-wide, prepaid, capitation health care system. The major project objectives were to contain per capita health care costs in the project as compared with regular Newark Medicaid costs, to improve the accessibility of medical services to the medically needy (New Jersey does not have a Statewide medically needy program), and to test the cost implications of providing prepaid health care to a medically indigent population of varied social, ethnic, and economic background.

There are currently approximately 4,700 enrollees, 3,900 of whom are medically needy. This is significantly below original enrollment projections, partially due to difficulty in obtaining providers to participate. The project is scheduled to end in June, 1981. Kappa Systems, Inc., is conducting an evaluation of the planning and implementation activities of the project.

### Prepaid Health Research, Evaluation, and Demonstration

The Prepaid Health Research, Evaluation, and Demonstration (PHRED) project is a grant awarded in 1976 to the California State Department of Health Services to develop model State cost and quality surveillance systems for prepaid Medicaid programs. The impetus for project development was substantial evidence of abuse in the management of California's prepaid health plan (PHP) program and the quality of care delivery under the program.

Implemented experimentally in the late 1960s, the California PHP program involved contractors serving more than 250,000 Medi-Cal (Medicaid) beneficiaries by 1974. The program spent almost $100 million a year to finance services for about 10 percent of the California Medicaid population. Hearings in 1974 and 1975 held by the Senate Permanent Subcommittee on Investigations, as well as documentation by State investigators, revealed deficiencies in the delivery of health care and management of the PHP program. The conclusion of the hearings was that HHS must bring the costs and administration of the PHP program under control. HHS was to promulgate stricter regulations and to fund the development of model cost and quality surveillance systems for PHPs.

The rate-setting component, now complete, resulted in three products. The first was a report on the adverse selection issue that had been the basis of the Sacramento Foundation Community Health Plan's justification of rates above the fee-for-service per capita costs. Comparing the age and sex distributions of these beneficiaries with the distributions of fee-for-service beneficiaries in the same counties, the report indicated that the Foundation, in fact, had a somewhat favorable selection. The second product was a Rate-Setting Guide for Prepaid Medicaid Contractors, based on a model incorporating demographic, utilization, and cost data.[3] Lastly, a final report on PHRED rate-setting activities was submitted in January, 1978. California adopted the PHRED actuarial rate-setting methodology and successfully used this system to set rates for fiscal year 1979.

In February of 1977, HHS funded the development of an accelerated implementation plan for an automated encounter data system to be the major mechanism for State quality assurance monitoring. The final design of the quality assurance component, however, will demonstrate the comparative costs and benefits of both an encounter data monitoring information system and a selective data acquisition approach, based on traditional review techniques. Previously defined criteria of performance which address structure, outcome, and access are being applied to both approaches in four California HMOs. The project's Quality Assurance Work Group, which developed these criteria, covers 22 ICDA organ system groupings. A staging approach to outcome-oriented quality measurement was also demonstrated under a subcontract to SysteMetrics, based on the classification of patients along a health/illness scale. The results indicate that PHPs in general lack the data necessary to successfully apply staging. A summary of the demonstrations and their findings, a final set of criteria, and (if the encounter data acquisition approach is deemed practical) general system specifications for operation will be produced.

In June, 1978, the Secretary approved funding for membership studies to develop and demonstrate systems, materials, and procedures to education Medicaid beneficiaries about health care alternatives. The studies were also intended to motivate a choice between enrollment in a State-contracted, prepaid health plan or reliance on the fee-for-service system. In addition, systems and methods to ensure that enrollees have the opportunity to express dissatisfaction, receive explanation, and withdraw are to be provided.

To accomplish the first objective, PHRED is assessing three methods of motivating choice: dual choice in the eligibility determination process using five experimental approaches, information mailed using two formats, and door-to-door solicitation to serve as the control group against the other methods. The methods planned to achieve the second objective include implementation of a prototype system for logging, reporting, and acting upon grievances and disenrollment requests, institution of training programs for prepaid health plan staff and consumer board members, and development of administrative methods and procedures by which a State can monitor enrollment in prepaid health plans. Testing of these methods began in the spring of 1979.

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[3] *Health Care Financing Research and Demonstration Report,* Report No. 7: "Ratesetting Guide for Prepaid Medicare Contracts." NTIS No. PB 290878/AS.

**Massachusetts Case Management** project, being conducted under a HCFA grant to the State Department of Public Welfare, is developing and testing a system that applies HMO management principles to the fee-for-service setting. The project hypothesizes that many providers do not want to become HMOs. Since there are no incentives in the fee-for-service sector for the providers to manage care, potential economies already demonstrated in the HMO setting through the use of integrated files, referral networks, risk arrangements, and coordinated patient care are not realized.

Massachusetts' case management program establishes a system of incentives for both providers of primary health care services and Medicaid recipients to participate in a case management approach to care. Each patient chooses a specific primary care practitioner or team which provides primary care and arranges, coordinates, and monitors all other medical care for that patient on a continuous basis. Under the demonstration program, 4,500 families under the Aid to Families with Dependent Children (AFDC) program will be enrolled as members with primary care providers. Their access to medical services will be limited to care rendered under the direction of these case managers. In order to deter potential abuse in marketing and enrollment of Medicaid recipients, the State will maintain control over the marketing function by hiring and supervising its own case management marketing staff. Recipients will be encouraged to enroll through a nominal monthly payment. There are four case management demonstration sites, including community health centers, medical group practices, and hospital outpatient departments. Each case manager's performance in controlling utilization and cost for enrollees will be assessed annually. The average expenditure for a case manager's enrolled population will be calculated, based on both site and referral claims, and compared with the average Medicaid expenditure for non-enrolled AFDC recipients. If a savings has been realized, this savings will be shared by the case manager and the State.

**Northwest Healthcare** is a prepaid, individual practice arrangement in the State of Washington, started by SAFECO, an insurance firm. Northwest Healthcare places primary care physicians (PCPs) at risk for their own services and the management of patient care. Intensive and successful recruitment of a large number of primary care physicians within selected communities in Washington has been undertaken over the past two years. In May, 1978, the plan was adopted as Board, which has responsibility for the health benefits a third option by the State Employees Insurance of 55,000 employees. The alternatives are Blue Cross of Washington and Alaska and, in certain areas, well-established, closed-panel, prepaid, group practice such as Group Health Coopeative of Puget Sound. The covered services are similar under all three plans, with Blue Cross featuring a $50 deductible and 10 percent copayment. Under a two-year grant which began in October, 1978, the University of Washington is assessing the impact of utilization and costs of care provided to State of Washington employees and their faMilies in this multiple choice situation.

The Northwest Healthcare program first signs contracts with most primary care physicians in a particular service area and then markets the plan on a group basis to employers. Each employee has a choice between the prepaid plan and at least one alternative. Enrollees in the Northwest Healthcare plan must select a participating PCP to manage all of their health care needs. Generally, patients' own doctors are listed, thereby obviating the need to change to a new provider as required by closed-panel HMOs.

Physicians having fewer than 50 patients under the plan receive fee-for-service payment. The bulk of the premium funds, placed in the accounts of participating physicians, cover all other benefits of the plan, including hospitalization, referral to specialists, and drugs. These costs are paid as billed only after the PCP has reviewed the bill and approved it for payment. If a PCP has more than 50 patients, one half of any surplus is paid to the physician as an incentive for delivery of cost-effective care, while one half of any deficit is shared with the physician up to an amount equal to five percent of the capitation payments made to him or her that year.

As part of the Northwest Healthcare evaluation, physicians who have agreed to participate in the plan, as well as those who have refused, will be interviewed to assess physician experience with risk-sharing and practice penetration. The utilization experience of samples of the 50,000 State employees and their dependents living in King County will be examined. The claims and utilization experience of random samples of those employees who have continued with their health plans will be compared to those families who switched to Northwest Healthcare during the open enrollment period (May through June, 1978). A household interview survey will then be conducted on a prospective basis to compare the utilization patterns of enrollees remaining with Blue Cross and Group Health Cooperative to those selecting Northwest Healthcare. The survey data analysis will control for and assess the influence of a variety of enrollee-related characteristics.

Families selecting Northwest Healthcare in the spring of 1979 will be randomly placed into one of two different plans—the existing Healthcare arrangement or an alternative that more closely resembles the traditional indemnity health insurance system. Comparisons of the experimental and control groups will provide an estimate of the cost-saving potential for controlled utilization and risk-sharing, as well as information on the dynamics of the Healthcare arrangement.

Stimulation of Alternative Delivery Systems

Following the Secretary's HMO Conference in March, 1978, HCFA awarded a two-year grant to InterStudy to promote the development of business-sponsored and business-initiated alternative delivery systems (ADSs). As part of this effort, InterStudy conducted a baseline review of specific corporations interested in ADS development. Target corporations are being chosen for intensive study to determine what kind of ADS best suits each business. These corporations are also being assisted in a survey of their health benefits program, cost and utilization, and an assessment of potential sites for ADS activity.

It is hoped that many of these studies will lead to the commencement of HMO feasibility studies or the introduction of other forms of ADS development. The target corporations are being chosen on the basis of their interest in ADSs' motivation, ability to act, and potential for development at sites that currently host no ADS activity. InterStudy has established an ADS Information Center with the capability to provide technical resource guidance to business.

Selection and Competition Effects of HMOs

Under a two-year grant, the University of California at San Francisco is investigating two questions of crucial importance to policies affecting the future of HMOs in the medical care system. The first question is whether part of the observed difference in cost and hospital utilization between enrollees in HMOs and in conventional health insurance plans is due to self-selection. Such selection may occur in very subtle ways and may not be seen in simple comparisons of age-sex and prior medical conditions. The second question is whether the existence of an HMO produces a competitive response by conventional insurers and providers that results in lower utilization rates by non-HMO enrollees. If this occurs, then the enrollment of a relatively small proportion of the population in HMOs might have a substantial effect on the medical system as a whole.

To address these issues, the researchers have developed a macro-economic model which will use aggregate data on the hospital utilization of large population groups, holding various factors constant through statistical methods and, most importantly, drawing together historical data to monitor over time the effects of the national experiment of HMO development. The data sources to be used include enrollment and utilization data by State for Blue Cross members and Office of Personnel Management annual reports on Federal Employees Health Benefits Plan enrollees in the Blue Cross/Blue Shield option.

Prepaid Health Plan Studies

ORDS is conducting several intramural studies of prepaid service plans. Certain health care plans that provide fully prepaid services to subscribers, either directly or through arrangements with fee-for-service practitioners and providers, choose to participate in Medicare under the cost- or risk-sharing provisions for qualified HMOs or under the older cost-reimbursement provisions of group practice prepayment plans (GPPPs). Although some plans under GPPP contracts are certified HMOs, Federal certification is not a requirement for GPPPs.

HMO-type plans realize savings because they encourage the substitution of ambulatory services, including preventive and health maintenance services, for the more expensive services and systems traditionally used for treating illness and disease. Studies have shown that Medicare beneficiaries who subscribe to GPPPs tend to incur higher costs for physicians and related services and lower costs for inpatient hospital care than beneficiaries who are not subscribers. The result in some GPPPs has been a net savings in total cost compared with control groups of non-plan beneficiaries.

To further test the hypotheses underlying the promotion of HMO-type plans, the data base used in previous GPPP studies is being updated through 1978. The plans' costs will be compared not only with costs for control groups of non-plan beneficiaries, but also with the Average Adjusted per Capita Costs (AAPCC) for their service areas. A similar data base is being accumulated for all plans participating in Medicare under HMO contracts. Beginning with 1980, it is anticipated that data will be routinely obtained from the billing system on an annual basis.

Another recently completed ORDS study analyzed the GPPP physician time differential, which permits GPPP physicians who serve aged beneficiaries to be reimbursed at a rate 20 percent above the standard cost-per-visit allowance. This allowance is made to compensate for the additional time often required by elderly patients. The accuracy of this allowance was questioned from the outset. One study indicated a 33 percent differential; two further studies have produced estimates of less than 10 percent. HCFA found that the 20 percent rate was correct.

**Ambulatory Care**

Ambulatory care generally refers to those forms of health services delivered outside the hospital inpatient setting. Ambulatory care offered in physicians' offices, outpatient clinics, and freestanding facilities providing surgical and radiation treatment services reduces the costly operational burdens of housekeeping, laundry, food service and the additional staffing associated with inpatient services. Ambulatory care services also usually require reduced financial and time commitments on the part of the health care consumer and lower expenditures on the part of third-party payers. In addition, this delivery mode represents one of the most practical means of increasing the accessibility of health services to certain medically underserved populations. A variety of services ranging from primary care to surgery can be offered and scarce health resources conserved in an ambulatory setting. The following projects should increase HCFA's experience in the administration and reimbursement of these alternative delivery modalities.

*Ambulatory Surgery*

Ambulatory Surgery Experiment

In December of 1977, the Orkand Corporation completed its evaluation of ambulatory surgery performed in alternative settings.[4] Under contract with ORDS, the evaluators sought to determine whether HCFA experiments with freestanding ambulatory surgery centers (FSASCs) provided more economical and effective utilization of services.

Current Medicare law permits reimbursement of the physician's fee for surgery performed in any setting. In addition, Medicare covers the reasonable costs incurred by providers of services for outpatient surgical services. However, since the current Medicare law defines providers of services as hospitals, skilled nursing facilities, and home health agencies, the program may pay facility costs for ambulatory surgery only if the surgery is rendered in an outpatient department of a hospital or in an ambulatory surgical center that is hospital-owned. Medicare reimbursement is not permitted for the facility costs of surgery in a freestanding center that is not affiliated with a hospital. Because of these restrictions, program beneficiaries may be deterred from using FSASCs, regardless of considerations of cost of quality of care.

To determine whether the Medicare law should be changed to permit reimbursement of facility fees to FSASCs, ORDS entered into an arrangement in April, 1974 with the Surgicenter of Phoenix to pay facility costs in accordance with principles applicable to hospital outpatient services. Data were also obtained from two hospital-affiliated ambulatory surgical facilities, seven conventional hospital inpatient and outpatient settings, and several hundred physicians' offices located in the Phoenix area. In October, 1975, five additional FSASCs in Florida, Texas, Illinois, Indiana, and Kansas were selected to participate in the demonstration.

The results of the evaluation favor including freestanding ambulatory surgical centers as providers under the Medicare program. Costs for the same procedures in the Phoenix Surgicenter were substantially lower (55 percent) than in hospital inpatient units and also lower (15 percent) than in hospital outpatient departments. Moreover, the quality of the care provided at Surgicenter was comparable to that provided in other surgical facilities in Phoenix. The satisfaction of both patients and physicians was high.

The results of the impact of the Surgicenter on the community's health care system are somewhat less clear because of the effects of other factors during the study period. However, the rate of surgery in Phoenix increased no faster than in the nation as a whole or in the western census region. Also, the potential for Medicare program savings was somewhat unclear because of relatively low use of these services by Medicare patients. Medicare beneficiaries, who represented 22 percent of all hospital discharges in 1974, represented only four percent of the patients served in the six FSASCs studied during the evaluation. This low utilization level was probably influenced by two factors: the services now provided by FSASCs are directed largely toward younger age groups and Medicare beneficiaries often have multiple medical problems which physicians generally prefer to treat on an inpatient basis. However, recent improvements in medical technology have expanded the number of surgical procedures, such as cataract extraction, that can be safely and effectively provided on an outpatient basis. In the 95th and 96th Congress, legislation supported by the Administration was introduced to permit Medicare reimbursement to FSASCs.

Surgery in a Prepaid Health Plan

The Research Center of the Kaiser Foundation Health Plan recently completed a two year study of the economic and medical consequences of shifting the delivery of surgical services within Kaiser from an inpatient to an outpatient setting. The cost and quality of surgical services provided to non-admitted patients were compared with the cost and quality of similar services provided on an inpatient basis. Although Kaiser's past orientation to inpatient surgery represented the traditional approach, the Foundation began to shift surgery to a non-admitting mode so that by 1968, 35 percent of their surgical patients were not admitted to the hospital. Unlike most health care providers, a prepaid health plan has built-in incentives to use less costly health care modalities and to control the overall number of surgical procedures performed.

The study found that medical and surgical care given to outpatients was of high quality and that there was little difference in outcomes of care between the outpatient and inpatient surgery modes. The study also found that the substitution of outpatient surgery for inpatient surgery resulted in substantial savings for the Kaiser Medical Plan. The researchers estimated that 17 hospital beds did not have to be built because of the increased use of outpatient surgery. The total cost savings for all outpatient incisional procedures ranged from $73,961 in 1967 to $434,811 in 1974. The total adjusted outpatient cost savings for Kaiser Plan Family Membership ranged from $2.21 in 1967 to $6.05 in 1974.

*Prospective Case Payment for Outpatient Costs*

In July, 1976, Yale University expanded development of its prospective reimbursement system based on diagnosis-specific cases to include outpatient services. However, the construction of a budgeting and cost control system based on diagnostic specific groups is much more difficult in an ambulatory care

[4] "Comparative Evaluation of Costs, Quality and System Effects of Ambulatory Surgery Performed in Alternative Settings": NTIS No. HRP 0024983/9WW (Executive Summary); NTIS No. HRP 0025749/3WW (Final Report); NTIS No. HRP 0025750/1WW (Methodological Appendix). Facility profile reports are available on NTIS Nos. HRP 0025751/9WW (Hollywood, Florida); HRP 002572/7WW (Phoenix, Arizona); HRP 0025753/5WW (Austin, Texas); HRP 0025754/3WW (Fort Wayne, Indiana); HRP 0025755/0WW (Wichita, Kansas); HRP 0025756/8WW (Arlington Heights, Illinois); and HRP 0025757/6WW (Phoenix, Arizona).

setting than in an acute care hospital. Ambulatory illnesses or problems, unlike illnesses for which patients are hospitalized, are frequently indefinite in character. This factor is reflected in tentative clinical impressions which often lack confirmation. By contrast, the Joint Commission on the Accreditation of Hospitals and State licensing laws require an official final diagnosis for each hospital discharge.

Other problems with ambulatory, diagnosis-based information include greater uncertainty about factors outside the health care setting which may influence the patient's recovery and less complete and standardized data. In the hospital setting, the diagnosis and the treatment regimen can be adjusted and progress closely monitored so that the application of specific treatments can be related to the patient's progress.

Diagnosis-based research addressing such problems has been conducted in two ambulatory settings: the emergency room of Yale-New Haven Hospital and the Yale Health Plan. The emergency room study demonstrated that, based on provider time, useful measures of resource consumption could be generated. This principle formed the basis for separating patients into clinical categories of emergency room patients.

The Yale Health Plan, a prepaid group practice offering a wide spectrum of outpatient services to Yale students, faculty, employees, and their dependents, has designed and installed a data system for the study. This activity was extended to September, 1979 to allow for the addition of an outpatient setting at St. Raphael's Hospital. The outpatient classification structure should provide valuable information on which to base future data collection requirements in the ambulatory setting.

### *Clinic Reimbursement*

#### Urban Clinics

In June of 1978, the Robert Wood Johnson Foundation (RWJF) and HCFA collaborated in the demonstration and evaluation of new methods of delivering and reimbursing medical services. These efforts are planned simultaneously to increase access to primary care and to decrease total health care costs per person served. The first of these cooperative efforts is the Municipal Health Services Program (MHSP) which was established in response to Congress' mandate for urban clinics experiments.[5] The chief aim of the MHSP is to assist municipalities in providing health care services to medically underserved areas by expanding existing programs of health departments and hospitals with a limited increase in a city's budget. Because the emphasis will be on the delivery of primary care and preventive services in ambulatory clinic settings, the MHSP is expected to assist State and local governments in making policy decisions involving the future role of the municipal hospital as a health care institution. It will also help in determining whether the development of primary care clinics associated with the outpatient departments of these hospitals can provide a means of increasing access to, and containing the costs of, health care services in urban areas. A decrease in the total cost and utilization of inpatient and emergency room services is anticipated.

RWJF awarded a total of approximately $15 million to five cities in June of 1978 to conduct these programs. The cities are Baltimore, Cincinnati, Milwaukee, St. Louis, and San Jose. RWJF is also supporting the Conservation of Human Resources Project of Columbia University in the evaluation of the program's impact on the organization and financing of municipal health services.

HCFA's involvement in the MHSP is twofold. First, HCFA has invited the mayors of the five cities and the governors of their States to submit requests for Medicare and Medicaid waivers which would enable Federal beneficiaries to participate in the program. These waivers would permit MHSP clinics to be reimbursed on a cost basis for currently noncovered primary and preventive services under Medicare and Medicaid as well as to forego copayments and deductibles under Medicare. The Medicare waivers went into effect in August, 1979. Medicaid waivers are planned for 1980. Secondly, HCFA has awarded a competitive contract to the University of Chicago to evaluate the impact of the program on cost, utilization, and access to ambulatory health services.

#### Extending Medicare Coverage to Mental Health, Alcohol, and Drug Abuse Centers

The Rural Health Clinic Services Act required HHS to prepare a report on the advantages and disadvantages of extending Medicare coverage to urban or rural comprehensive mental health centers and to centers for treatment of alcoholism and drug abuse. This report, sent to Congress in October of 1978, contains a substantial amount of data on the needs among the elderly for mental health and alcoholism treatment and on the difficulties they face in using such services. These data suggest that the elderly are not receiving adequate mental health and alcoholism treatment services and that restricted Medicare coverage may be a significant barrier to access.

The magnitude of mental health problems and alcoholism among the elderly is not reflected in their use of services provided by mental health or alcoholism centers. This is due to a number of factors, including (1) the reluctance of the aged to seek psychiatric services, (2) the tendency among the elderly to define their problems as physical rather than emotional, (3) a lack of training among mental health professionals in treating the problems of the aged, (4) the cost of mental health services, and (5) limited Medicare coverage for such services, particularly for outpatient mental health services.

The report examines several proposals for extending Medicare coverage for mental health services and alcoholism treatment, as well as their advantages and disadvantages. It makes no recommendations on whether Medicare coverage should be extended.

#### Rural Health Clinic Copayment Study

The Rural Health Clinics Services Act of 1977 (Public Law 95-210) requires DHHS to "conduct a study of the feasibility and desirability of imposing a copayment for each visit to a rural health clinic for rural health clinic services under Part B of Medicare . . . instead of the deductible and coinsurance amounts otherwise required . . . "

The completed study analyzes various aspects of a change to copyaments, including (1) the effects of various types of cost sharing on the use and cost of

[5] The Rural Health Clinics Services Act of 1977 (Public Law 95-210).

health services, (2) the possible use of copayments as a method for reducing and subsidizing the total cost sharing applicable in rural health clinics, (3) the change in the burden of cost sharing on the beneficiary under alternative copayment proposals, and (4) the feasibility of coordinating a copayment provision with the regular Medicare cost sharing requirements for patients also using other facilities. Three proposals incorporating substitution of copayments for the regular requirements are described to illustrate the problems in attempting to design a coordinated copayment provision.

*Utah Social Delivery Network*

The Office of Human Development Services (OHDS), HHS, awarded a grant in 1978 to the Utah Department of Social Services. It was awarded to implement a four-year project to develop and evaluate several unified social services delivery systems within urban and rural Utah. Since the concept of social program unification has potential impact on a broad range of health and welfare programs, HCFA, the Social Security Administration, and OHDS joined in granting funds for this project. The resultant system will incorporate six concepts into its unification policy: service delivery focused on a locally coordinated and cooperative system, co-location of multi-service providers in decentralized facilities, matrix organizations with an emphasis on maximizing local control, single-point administration in the service delivery area, comprehensive services planning and unified budgeting at the local delivery level, and common support systems to avoid duplicative operations.

The State plans to replicate an experimental, rural, unified, service delivery system implemented in 1972 in other rural areas of Utah and to develop appropriate models for use in urban areas, thereby establishing a Statewide network of locally based human service delivery systems. In the first year of the project, three additional rural areas have begun operating unified systems. Two more rural systems are being planned and an urban system began operating in 1979.

*Expanded Practitioner Coverage*

Clinical Psychology/Expanded Mental Health Coverage

In 1970, the President's Task Force on Aging recommended that the restriction on Medicare coverage of outpatient psychiatric care be removed so that Medicare would pay the same benefits for outpatient psychiatric treatment as it does for all other outpatient care. In 1972, Section 222(b) of Public Law 92-603 authorized the Secretary to conduct experiments and demonstrations to determine whether expanded access to the services of clinical psychologists under Medicare and Medicaid could be provided in a manner consistent with quality care and efficient administration. Current Medicare reimbursement to physicians for outpatient psychiatric services provided under Part B cannot exceed 50 percent of the reasonable charges for such treatment or $250 in each calendar year, whichever is less. Moreover, psychotherapeutic services provided by clinical psychologists are not covered unless "incident to a physician's professional services."

HCFA completed a clinical psychology/expanded mental health coverage demonstration in Colorado, which operated from October, 1976 through December, 1978. This demonstration is being evaluated under a contract with SRI International to examine the effects of covering clinical psychologists as independent practitioners and of raising the Part B outpatient mental health limitation on reimbursement from $250 (50 percent coinsurance) to $400 (20 percent coinsurance). Analysis of the effect of changing the coinsurance rate has been included because many analysts of the Medicare program have claimed that the current level of coverage for outpatient mental health services may encourage use of inpatient mental health services. On an inpatient basis, mental health services are reimbursed as other Part B services, with the application of a $60 deductible and 80 percent of reasonable charges.

During the demonstration, Medicare beneficiaries in Colorado were randomly assigned to one of four groups that were eligible to receive the following benefits: current Medicare outpatient mental health coverage (control group); current 50 percent coinsurance and coverage of services of independently practicing clinical psychologists; 20 percent coinsurance and current coverage of clinical psychologists; or 20 percent coinsurance and coverage of service of independently practicing clinical psychologists.

The evaluation focuses on three areas: cost and utilization, quality of care, and administration. Evaluators are analyzing whether the coverage of services of independently practicing clinical psychologists and/or the lowering of the rate of coinsurance have affected utilization and the total cost of the Medicare program. The evaluator is also examining the characteristics of providers and users of mental health services, assessing the adequacy of the current and experimental coverages, and studying changes in accessibility. In addition, SRI is looking for any effect on quality of care resulting from covering clinical psychologists as independent practitioners, such as the effectiveness of mechanisms used to ensure that any physical conditions contributing to the mental symptoms of their elderly patients are identified and treated.

The process of incorporating clinical psychologists as independent practitioners into the Medicare program for the demonstration is also being analyzed. Among the topics covered in the 1977 progress evaluation report are the peer review process, the proficiency review system established to grant provider status to clinical psychologists, and the development of a schedule of reasonable charges.

The final evaluation report is due in 1980. Preliminary findings indicate a very low utilization of clinical psychologist services and no significant effects of reducing the coinsurance rate for outpatient mental health services.

Physician Extender Reimbursement Experiment

ORDS studied the circumstances under which reimbursement for physician extender (PE) services would be appropriate under the Medicare program. The study was also designed to determine the most appropriate, equitable, and noninflationary methods and amounts of such reimbursement. It indicated that the use of PE

services generally increases productivity and cost-effectiveness.

Three distinct evaluation phases and methods were developed to determine the productivity of the physician extender in a non-institutional setting.

For the first phase, HCFA entered into a contract with the University of Southern California (USC) to identify the study population and to collect and analyze baseline data related to PE utilization and productivity. Findings cited in the August, 1978 final report by USC indicated that the employment of a PE significantly reduces physicians' involvement in the provision of basic care services and that PEs focus more exclusively on basic care than do physicians.[6] In addition, PE practices seem to experience more frequent and longer direct patient encounters per day, and they seem to generate more income each day. It also appears that PE practices allow more time for each patient, provide more telephone care, and result in lower charges than do non-PE practices.

A second phase of the study focused on an evaluation of PE and comparison practices to assess differences in quality of care and practice cost attributable to PE employment. Systems Sciences, Inc. contracted to conduct this evaluation and completed the final report in March, 1978.[7] Interviews, observations, and records review revealed that participating practices with PEs scored higher in quality than did comparison practices without PEs. Physicians reported that their supervision of PEs in the ambulatory care practice was minimal and rated PE skills highly. In addition, the range of patient services available in those practices employing PEs generally increased. Data also indicated that reimbursement for PE services was cost-effective; practices with PEs provided more patient visits per $1,000 of practice costs than did non-PE practices. Also, among those practices using PEs, solo practices saw more patients than non-solo practices. An anlaysis of billings per visit to patient and of billings per visit to patient and third-party payment sources by practice revealed that average charges per visit were lower in practices with PEs than in those without.

During the third phase of the study, an intramural analysis is being conducted to assess the impact of PE reimbursement on PE practice activity. Participating practices are reimbursed for PE service based on a percentage of the physician's allowed Medicare reimbursement, either 100 percent, 80 percent, or an average net cost related to reimbursement (generally around 62 percent of physician charges). The carriers collect claims data on cost and utilization for evaluation. Data from calendar years 1976 through 1978 are being analyzed.

The PE reimbursement study provided significant input to HHS' support for Medicare reimbursement to PEs in rural health clinics and subsequent passage of Public Law 95-210, the Rural Health Services Act. This act authorizes Medicare and Medicaid reimbursement for nurse practitioners and physician assistants.

[6] NTIS No. PB 294744/AS: "Collection and Processing of Baseline Data for the Physician Extender Reimbursement Study."

[7] NTIS No. PB 281722/AS: "Survey and Evaluation of the Physician Extender Reimbursement Experiment."

**Early and Periodic Screening, Diagnosis and Treatment Program**

A 1967 amendment to Title XIX of the Social Security Act required States to cover Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) services for all Medicaid-eligible children under 21. Implementation of the amendment was delayed partly because the States feared extensive fiscal burdens resulting from heavy demand upon scarce health care resources. Responding, however, to public pressure and concerned with spiraling medical costs, the growing number of AFDC families and the uneven distribution of medical facilities and manpower, Congress in 1971 encouraged HHS (then HEW) to issue final implementing regulations for EPSDT programs. Effective February 7, 1972, all States were required to provide early and periodic screening of eligible children and subsequent diagnosis and treatment of physical and mental/developmental conditions discovered within the limits of State plans. Treatment would be partially determined by the amount, duration, and scope of care and services available. In addition, the program would provide for eyeglasses, hearing aids, other kinds of treatment for visual and hearing problems, and for some dental care. Also in 1972, amendments were added to the Social Security Act which specified that any State that failed to inform all AFDC families about the availability of EPSDT services, provide screening services when requested, and provide the necessary follow-up diagnostic and treatment services, would be penalized one percent of the Federal share of its AFDC budget for any quarter in which the State was not in compliance. EPSDT represented a significant departure for the Medicaid program. Rather than simply being responsible for reimbursement for bills submitted by providers, EPSDT required States to ensure the provision of services.

The States faced major problems in meeting these requirements, including inadequate funding and staffing of EPSDT personnel, divided and ambiguous agency responsibility for EPSDT implementation at both State and local levels, lack of adequate outreach, limited provider participation, lack of reporting and tracking systems, and poor inter-agency coordination and collaboration to serve the estimated 12 million children eligible for EPSDT services.

To provide knowledge about EPSDT program performance at Federal, State and local levels, the Social and Rehabilitation Service (which was abolished when HCFA was established) authorized grants for a series of EPSDT research and demonstration projects. These demonstrations were designed to do the following: investigate the EPSDT program's impact on child health; develop more effective and efficient procedures for EPSDT outreach, screening, case management and follow-up care; determine costs of EPSDT functions; develop EPSDT evaluation models to assess the effectiveness of various State and local EPSDT programs; and demonstrate working relationships between agencies and providers with special emphasis on schools, special education, developmental programs in children and adolescent needs. In addition, at the request of the Office of Management and Budget, an SRS grant was awarded to the University of Texas Health Services Research Institute (HSRI) to evaluate the impact of the 1972 EPSDT legislation on various State and local programs based

on the tracking systems for children's health records. HSRI staff selected one county in each of three States and in the following year (1973) added 23 other localities in these and five other States which were attempting to implement EPSDT. A key finding of the study was the need for followup on positive diagnoses; only 46 percent of abnormalities were treated. Also, 45 to 76 percent of the children screened had no documented physical examinations for one year prior to screening and 85 to 99 percent had no documented dental or optometric visit.

*EPSDT Pilot Projects (1972-1977)*

The first four EPSDT research and demonstration projects were used as laboratories to identify components essential to a comprehensive program. These projects tested different approaches to EPSDT administration at the local level for approximately 25,000 low income children over a three to five year demonstration period. The **Barrio Comprehensive Child Health Care Center** (1972-75) in San Antonio, Texas, demonstrated that a comprehensive health care center could provide EPSDT services and tested research procedures for assessing the cost-effectiveness of preventive pediatric care for children under 12 years.[8] Two components were added to this project between 1976 and 1979. One demonstrates and evaluates low cost delivery of services designed to improve family emotional stability and self-concept through screening, diagnosis, and treatment of developmental problems in children. The other tests the effectiveness and cost of aggressive outreach (using incentive reimbursement to case aides), followup on problems identified, an immunization-health education and dental education program, and referral and support services. If successful, these concepts may be applied throughout the State.

The **Cuba Checkerboard Project** (1973-1976) in northwestern New Mexico demonstrated a component of rural health delivery in a tri-ethnic population of Navajo Indians, Spanish Americans, and Caucasians.[9] The objectives of the EPSDT component were to determine cost-effective ways to conduct EPSDT screening using school facilities and to ensure that medical and developmental treatment was received in a rural area. Schools throughout New Mexico have contracted for services similar to those provided in this demonstration.

The Contra Costa County Health Department project, **EPSDT In the Three Model Areas** (1973-1977) in California, provided services to children of urban black, rural Mexican-American, and low-income Caucasian populations. The project's goal was to establish and operate a data system to facilitate smooth entry and retrieval of clinical and followup data.

A Washington, D.C. Department of Human Resources project, **EPSDT In Child Day Care Centers** (1973-1977), encompassed all components of an EPSDT program—medical, developmental, and emotional—and demonstrated one approach to an improved delivery system for inner-city black children in preschool, after-school, and public school facilities.[10]

HSRI was awarded a grant to develop and implement the data systems of the four early demonstration projects and to evaluate their programs.[11] A common data base was developed to collect comparable data from first patient contact through case completion. HSRI analyzed collective data on the four projects; some of the highlights of their findings, as well as those from the individual final project evaluation, are listed below.

- Less than one percent of the children screened had had a previous examination comparable to that called for by EPSDT guidelines;
- Nearly half of the children screened were found to have medical problems and more than half had medical and/or dental problems;
- Between 60 and 80 percent of the problems were previously unknown and untreated; 80 percent of these problems were chronic, and 20 percent were acute;
- The most frequent problem found in screening was dental caries—25 percent to 50 percent of the children screened; iron deficiency was found in 13 percent, vision problems in 13 percent and hearing loss in nine percent.
- Innovative methods were needed for ensuring that children with dental and visual problems received treatment;
- The Contra Costa project showed that the health of those children that had multiple screens improved from 67 percent at the first screen to 80 percent at the second screen (based on a healthiness rating scale developed by HSRI);
- Based on developmental assessment of nearly 7,000 preschoolers for social and emotional problems, language and cognitive skills, and visual motor perception and memory, roughly five percent had severe developmental problems; the percentage was higher in school-aged children.

[8] NTIS No. HRP-0009690, "The Barrio Comprehensive Child Health Care Center (Final Evaluation Report)."

[9] NTIS No. PB 292971/AS, "Child Health in a Tri-Ethnic Rural Area: An EPSDT Demonstration in the Checkerboard Area of New Mexico."

[10] NTIS No. PB 294870/AS, "The National Child Day Care Association EPSDT Demonstration Project: Implementation of Comprehensive EPSDT in a Day Care Association (Final Evaluation Report)."

[11] The University of Texas Health Science Center, Health Services Research Institute at San Antonio: *An EPSDT Interim Report, 1976; The Barrio Comprehensive Child Health Care Center, November 1972-June 1975: Final Evaluation Report,* (Fiedler and Dickson), November 1975; *Child Health in a Tri-Ethnic Rural Area: A EPSDT Demonstration in the Checkerboard Area of New Mexico, 1973-1976,* (Davis and Dickson, May 1978); *National Day Care Association EPSDT Demonstration Evaluation Report, October 1973-June 1977,* (Dickson, Balfour and Ballard), August 1978; *Contra Costa County, California EPSDT Demonstration, 1973-1977, Final Report,* (Dickson and Gardner, *et al*), May 1979. See also NTIS No. HRP 0009691, "EPSDT Demonstration Projects: An Interim Evaluation, April 1974-March 1975."

Another evaluation completed in 1976 was the **Michigan Tracer Study.**[12] The objective of this effort was to develop standard and expected outcomes of care for selected medical conditions to assess the adequacy and impact of diagnosis and treatment delivered after screening children in the Michigan EPSDT program. The data source was comprised of 10,700 screening records in 29 EPSDT clinics. This evaluation indicated that diagnosis and treatment services received under the program were adequate only about 35 percent of the time as judged by minimal care criteria. Also, a data reporting system was needed to identify which referred persons were not receiving diagnosis and treatment services.

*Later Demonstrations and Evaluations (1975-Present)*

A second series of EPSDT demonstrations was conducted between 1975 and 1979. Most of these projects included controls and the collection of baseline data for comparison. The Dallas, Texas **EPSDT Demonstration in an Urban Setting** (1975-1978) was conceptualized at a time when only 20 percent of the nation's Medicaid-eligible children were participating in the EPSDT program.[13] The purpose of this project was to develop innovative and cost-effective case-finding methods to improve client participation in the EPSDT program and to achieve increased rates of treatment for problems found in followup case monitoring. The study produced a number of interesting findings.

- Trained, indigenous, community service aides visiting program eligibles at home increased the number of kept appointments for screening to about 50 percent, with three appointment efforts.
- Actively increasing the availability and accessibility of screening sites by using mobile screening teams in community-donated space, while holding constant the home visit outreach techniques, increased the participation rate to 60 percent, with a potential of 70 percent participation. This is considered by researchers to be the maximum achievable in a major urban setting.
- The introduction of a structured case monitoring system for in-home followup of problems found in screening increased treatment rates from 64 to nearly 90 percent.
- The EPSDT Program in the Dallas project area had minimal impact on Medicaid diagnosis and treatment costs.

A paper on the project highlighted the success of using indigenous community aides to increase participation in urban areas by 30 percent with the provision of transportation services.

Several projects were conducted between 1975 and 1977 to demonstrate that existing State and local data systems could support EPSDT planning and evaluation requirements, including reporting requirements to Federal agencies. Bokonon Systems, Inc., developed a general model for EPSDT planning and evaluations under an SRS contract. The model allowed for use of existing data systems and was subsequently implemented in South Carolina and in a local setting in New York City.

The South Carolina Department of Social Services administered the **Demonstration of a Statewide EPSDT Planning and Evaluation System** (1975-1977).[14] The following factors and characteristics contributed to this program's overall success: a manageable number of eligibles, pre-implementation program planning, pretesting in two local counties, maximum utilization of available resources, a uniform Statewide case management and reporting system, yearly screening goals, education in health problems for caseworkers and periodic in-service training for clinic staffs, legislative and executive branch support, strong State-level administrative support, assigned full-time EPSDT staff at the State level, and frequent communications between health and social services departments at all levels.

The Roosevelt Hospital Pediatric Service in New York City, under contract with the New York Department of Social Services, demonstrated the feasibility of the Bokonon Systems' model at the local level in a project entitled **Utilizing Existing Health Data Systems to Demonstrate a Model for EPSDT Planning and Evaluation** (1975-1977). Success in using existing data bases should lead to significant economy in the use of discretionary Federal, State, and local resources that would otherwise require new data collection.

The Pierce County, Washington **Demonstration in Follow-Up** (1976-1979) is administered at the local level by the Washington Department of Social and Health Services and was evaluated by HSRI. A final evaluation report was available in late 1979. Preliminary findings attest to the effectiveness of this system for ensuring that problems identified in screening are subsequently diagnosed and treated. Evaluators have implemented a reporting system for information on types of problems identified, diagnosed, and treated, determined diagnosis and treatment costs for the existing systems, and studied the effects of a formal case monitoring program. This project is unique in that a large proportion of the screens were performed by the private physicians who first diagnosed the patients. The more common two-step approach involves screening in a clinic setting with diagnosis and treatment provided at a later date in a separate setting. Some major project findings to date follow.

- Despite the absence of an active case-finding activity, an estimated 45 percent of eligibles were screened in Pierce County in 1978. This result has been attributed to the one-step mode where physicians appear to recruit clients to EPSDT through routine sick visits.
- Physician screening during sick visits results in the reporting of many acute conditions but few of the dental, vision, and hearing problems usually found in preventive health screening.

[12] NTIS No. PB 290959/AS: "Tracer Evaluation of Diagnosis and Treatment of EPSDT," and NTIS No. 290960/AS: "Tracer Evaluation Manual."

[13] NTIS No. PB 290668/AS: "EPSDT Demonstration in an Urban Setting, Dallas, Texas (Summary Report of Final Evaluation)."

[14] NTIS No. PB 294335/AS: "State and local EPSDT Planning and Evaluation Model (South Carolina — Final Report)."

- Case monitoring significantly increased the proportion of problems reaching treatment and improved outcomes.
- The wide variation in the number and types of problems found by different types of providers indicates that performance standards are essential for EPSDT.

This demonstration resulted in a proposed State plan for EPSDT, developed by project personnel, that incorporated specific recommendations for a Statewide program. The proposed plan, in turn, led to the proposal of a bill to the Washington legislature.

The Dade County, Florida **EPSDT Demonstration** (1975-1979), administered by the Florida Health and Rehabilitative Services Department, was designed to develop and document innovative techniques to ensure integration of the Medicaid-eligible child into the health care system and to assess the effectiveness, applicability, and incremental costs of those techniques. An evaluation of this project is being conducted under a contract with the International Planning Associates, Inc. The project's significant accomplishments include the development of a case management system, including training materials for case aides and a support management information system and media information package.

IBM will market the Dade County case management system as an installed user package across the country. This system has demonstrated low cost (approximately $1.36 per case) and resulted in reduced management costs to the Florida Medicaid program. A hospital in Dade County has incorporated the system for use for all patients as part of its patient management system.

Another project conducted between 1976 and 1979 in the area of EPSDT program administration and management was called **Coordinated On-Site Screening, Service, and Training.** This project was jointly administered by the City of Ann Arbor, Michigan and by the University of Michigan School of Education, each under a separate contract with the Michigan Department of Social Services. The goal was to improve the identification of day care children with remedial physical, intellectual, or social-educational difficulties. The project extended outreach through family day care centers and homes licensed for day care and involved parents and child care personnel in early recognition and intervention procedures.

The **Social Skills Development Program Demonstration Project: A School-Based Early Identification and Treatment Program for Children with Developmental Lag** (1977-1981) is sponsored by the City of Cincinnati Department of Health under contract with the Ohio Department of Public Welfare. This project is designed to evaluate the potential value of combining a social skills development program (a preventive mental health and early detection program) with EPSDT to increase the effectiveness of screening, referral, diagnostic, and treatment services. The target population is comprised of primary grade children experiencing behavioral, learning, emotional, and medical problems in three inner-city schools. Mass screening and teacher input identify children in need of services, with referral provided through the project.

Under contract with the California Department of Health Services, the Contra Costa County Health Department conducts an EPSDT demonstration called **Reaching the Adolescent** (1977-1981). The long-range goal of this project is to provide teenagers with a health experience that can be integrated into their lifestyles and carried into their role as parents. Specific objectives are to demonstrate innovative techniques for breaking through teen communication barriers and to develop a one-step, cost-effective model for comprehensive health care of teenagers, including physical, social, and emotional health. This model includes linkages with other health care and social services in the community and employs the school system in its outreach program. The County Health Department has contracted with HSRI to evaluate the effectiveness of the program. Three types of indicators for evaluating program effectiveness have been defined: primary operational project performance indicators, indicators of the success of specific innovative intervention techniques, and project impact on the incidence of teen health problems and related social problems. Control groups have been identified and a baseline period established for measuring comparative impact on variables such as venereal disease, school absenteeism and dropouts, and teenage births. An instrument developed by HSRI will measure change in teenagers' attitudes about their ability to control their health and their knowledge about common adolescent problems.

The **Johns Hopkins Center for School-Aged Mothers and Their Infants** project is being carried out under contract with the Maryland Department of Health and Mental Hygiene. This demonstration provides comprehensive care during pregnancy, labor, delivery, and the postpartum and neo-natal periods in one setting to adolescents 17 years and under. The project also fosters a community liaison to prevent adolescent pregnancy. Beginning with prenatal care services, the program continues until the child reaches age three. To prevent early unwanted pregnancies, family planning and sexual decisionmaking are incorporated into every phase of the program. There was only one repeat pregnancy among approximately 200 girls seen in the followup between January and June 1978; 50 might have been expected on the basis of national figures. Also, more than 80 percent of the young mothers returned to school or found employment, compared with earlier periods when 90 percent were dropping out of school after delivery. Johns Hopkins University will conduct the evaluation of the program's effectiveness, cost-benefits, client acceptance, and impact on the problems of adolescent pregnancy in Baltimore and its potential for Statewide implementation.

The **School-Based Integration of Health and Special Education Services for Children** project (1978-1981) is being administered by the Merrimack Education Center (MEC). Under contract to the Massachusetts Department of Public Welfare, MEC is demonstrating and evaluating a new interagency approach to delivering high quality educational and health services to children through a school-based local resource network. This network meets the mandates of both the Federal EPSDT program regulations and the Massachusetts Special Education Laws. Major objectives of the project are: (1) to design and implement a

contracting/brokering mechanism that interfaces local schools and medical service providers and helps to assure that EPSDT requirements are satisfied; (2) to provide access to special education, health, and ancillary services through a school-initiated single intake, evaluation, and case management system; and (3) to design and implement a records management system and a comprehensive training program for parents, school principals, physicians, entitlement specialists and others.

The **Evaluation of EPSDT in Southeastern Pennsylvania** is being conducted by the Philadelphia Health Management Corporation. The planned outcome of this study is an in-depth profile of EPSDT patients and providers which identifies variables affecting program performance. A four-year longitudinal analysis of changes in patient status and patterns of utilization, and a cost analysis are being performed. The results will help to determine new directions for the prevention-oriented child health care delivery programs and critical variables in program design. Data on participating children have been consolidated and additional data collection instruments have been designed. Studies are scheduled for completion in 1980.

**End Stage Renal Disease Program**

In 1972, Congress extended Medicare coverage for the cost of end stage renal disease (ESRD) treatment to over 90 percent of the population through enactment of Section 299I of P.L. 92-603. Prior to enactment of this legislation, many ESRD patients received very little assistance in meeting the high costs of renal dialysis and transplantation services. Many individuals went untreated for lack of funds. Now, however, ESRD treatment is available to virtually all those who would benefit from it, with Medicare coverage extending to both kidney transplantation and maintenance dialysis treatments.

The number of Medicare beneficiaries with end-stage renal disease was approximately 38,000 in January 1977 and is steadily increasing. In 1976, Medicare paid $492 million for covered services to 37,000 ESRD patients. Public law 95-292 is designed to make the ESRD program more cost-effective, primarily through the removal of several disincentives to home dialysis that exist under current Medicare law. These disincentives have contributed to a decline in the percentage of patients dialyzing at home—from 36 percent in 1973 to less than 13 percent currently. This decline has important cost implications for the ESRD program, because in-facility dialysis costs approximately $22,000 per patient year, whereas home dialysis costs approximately $11,800 after the first year home. Public Law 95-292 also gives the Secretary a mandate to carry out a series of studies, experiments, and demonstration projects to explore various cost-saving strategies. These projects are to involve coverage of home aides, financial assistance in the purchase of new and used durable medical equipment for home dialysis patients, experiments to evaluate methods for reducing ESRD program costs, a study of reimbursement to physicians for services to renal patients, a study of renal disease patients not entitled to Medicare benefits, and a study of the economy, medical appropriateness, and safety of the cleaning and reusing of dialysis filters by home dialysis patients.

*ESRD Experiments*

HCFA is sponsoring three demonstration projects which involve changes in the present ESRD benefits. The projects are designed to increase the efficiency of the ESRD program without reducing the quality of care received by ESRD patients. The major benefit change involves coverage of the services of a dialysis aide for maintenance dialysis sessions performed in the patients' homes. All paid dialysis aides must received training from an approved training program in a participating dialysis facility. Once the aide has satisfactorily completed a training course, he/she is certified by the training facility to assist the patient with whom the aide was trained. The aide may then be directly employed by the training facility, the patient, or an independent agency, depending on the model followed at the individual demonstration sites. In all cases, the patient and aide receive ongoing direction and supervision from the participating dialysis facility.

If a patient chooses not to use the services of a paid home aide, but rather uses the assistance of a family or household member to dialyze, then he or she will receive a monthly payment equal to approximately one-half the amount that would have been reimbursed for the aide's services. This payment will encourage the continued use of family members to assist with dialysis, and will provide an additional incentive for patients to go on home dialysis.

Public Law 95-292, enacted in June of 1978, provides limited coverage of home aide services under a target rate that cannot exceed 70 percent of the average regional payment for outpatient dialysis. Dialysis supplies, equipment, and support services are covered under the same rate. Family member services are not reimbursed under the target rate. The evaluation of these projects will determine the relative effectiveness of aide coverage under the demonstrations and under Public Law 95-292.

A second benefit change (involving one demonstration only) originally permitted the implementation of a less costly method of reimbursing for dialysis equipment used in the patient's home. Participating facilities purchase dialysis equipment directly from suppliers and are reimbursed by Medicare on a lump-sum basis at 100 percent of cost. This equipment is then provided to the facility's home patients. Medicare continues to reimburse the facility for the costs associated with maintenance, repair, and refurbishment of the equipment. Public Law 95-292 authorized this same reimbursement arrangement for dialysis equipment on a national basis, for facilities that enter into special agreements with the Secretary. Regulations were published effective October 1, 1978, to implement the provision. After this date, therefore, the demonstration was limited to gathering data on the cost effectiveness of this new provision of the law.

Three contracts were awarded to design and implement these demonstration projects. One was awarded to System Sciences, Inc., which has enlisted the participation of eight dialysis facilities in six different States. Approximately 800 patients are eligible to participate in this demonstration. Another was awarded to Research Triangle Institute and involves all ESRD beneficiaries (approximately 600) and 10 dialysis

facilities in North Carolina. A third contract was awarded to the University of Utah, for implementation of a Statewide demonstration in Colorado and Utah (approximately 400 ESRD beneficiaries reside in these States). All three projects provide for coverage of paid home dialysis aide services and the one-half rate payment to home patients who use the assistance of a family or household member to dialyze. Only the University of Utah project involved the experimental reimbursement methodology for dialysis equipment.

The System Sciences demonstration began on April 1, 1978; the University of Utah demonstration began July 1, 1978; and the Research Triangle Institute demonstration began on October 1, 1978. Each project will operate for approximately three years. During this period, an independent evaluation of the demonstrations will be conducted under a separate contract. Participating beneficiaries will continue to receive coverage for aide services for an additional 6 years after the operational period has ended to provide a meaningful incentive for ESRD beneficiaries to go on home dialysis during the experiment.

The evaluation of the three demonstrations will focus on the areas of cost, utilization of services, and quality of care. A request for proposals was issued to solicit an evaluation contractor and an award was made to Orkand Corporation in the fall of 1979.

A draft first year annual report has been received from System Sciences, Inc. The report indicates an increase in the number of home patients in experimental facilities from 195 to 310, or 59 percent. The number of facility patients increased approximately 17 percent. The control group facilities experienced increases of seven percent in both the home and in-center populations. A total of 85 dialysis assistants (full reimbursement rate) and 220 family members (1/2 reimbursement rate) were participating in the study at the end of the first year. Many of the family members and a few of the dialysis assistants were already dialyzing patients before the demonstration began. Cost data are not yet available; therefore, it is not known whether any program savings have been achieved.

### *Renal Physician Reimbursement Studies*

ORDS initiated a preliminary analysis of reimbursement for renal physicians under its grant to Northwestern University's Center for Health Services and Policy Research. The Center has reviewed the issues surrounding an appropriate method of physician compensation.[15] Their analysis challenged the "fairness" notion as a basis of appropriateness and suggested that a better standard would be a compensation methodology providing for lowest total program costs with a given level of quality.

[15] Held, Philip and Mark Pauly, "Compensation of Physicians in the End State Renal Disease Program," Working Paper #25, Center for Health Services and Policy Research, Northwestern University, March 10, 1979.

Northwestern University will expand its analysis to address, on a conceptual basis, the following issues: (1) ESRD policy options and their implications for program change; (2) incentives facing patients, as well as physicians who may act both as providers of medical care and possible owners/users of dialysis facilities; (3) incentives facing ESRD facilities; (4) short- and long-run incentives to the suppliers of ESRD equipment; (5) empirical measures to test the models of behavior developed above; and (6) the best methods to measure the costs to HCFA of the ESRD program under various modes.

ORDS will use the theoretical framework provided by Northwestern University to perform empirical analyses on available data bases, primarily the ESRD Medical Information System. Depending on data availability, two key issues will be examined: (1) Do total program costs differ for patients being treated by physicians reimbursed by the fee-for-service versus the capitation method? and (2) Does pre-selection of patients and/or physicians affect our ability to generalize the cost differences which occur between the two methods of physician reimbursement?

### *Utilization of Services and Reimbursement for ESRD Patients*

Using administrative claims data, this study examines the use of services and Medicare reimbursement for ESRD patients for the years 1974-1978. This ORDS intramural study began in June, 1979 and will produce utilization and reimbursement information on the ESRD population in greater detail than is presently available. It will also help in projecting future demand for care by this population. Trend analysis will document the growth of the program for program managers and the reasons for growth (new patients, inflation, longevity of original patients). The study population includes approximately 80,000 Medicare beneficiaries ever designated as end-stage renal. Enrollment and claims data provide information on all utilization and reimbursements for this population. Enrollment and termination information enable longevity as an ESRD patient to be calculated. Use and reimbursement rates will be calculated per person year. It will be possible not only to examine age, sex, and race-specific use rates per year, but to examine the use rates of cohorts through time.

### *ESRD Implementation Study*

In September of 1978, a grant was awarded to the Rand Corporation to undertake a study of "The Implementation of the End-Stage Renal Disease Program." The first objective of this project was to analyze the ESRD program established by Section 2991 and to identify the major factors affecting its implementation. The second purpose is to develop the administrative implications of the ESRD implementation experience for prospective national health insurance (NHI) programs. Though many have spoken about the ESRD program as an administrative prototype for NHI, no explicit analytic effort has been made to generalize from the limited experience. The research is seeking to make these lessons explicit.

# Chapter III
# Hospital Reimbursement

## Introduction

Annual double-digit hospital inflation figures emphasize the need for cost containment measures in health care delivery and reimbursement. The rate of increase in hospital spending peaked two years after the termination of the Economic Stabilization Program controls in 1974. Growing government health care outlays and beneficiary out-of-pocket payments have paralleled the increases in hospital fees and utilization of services. These increases include a 12.4 percent rise in hospital room rates between January, 1978 and January, 1979, as reported by the Bureau of Labor Statistics.

The public and private sectors have taken action in response to increasing expenditures. The hospital sector's Voluntary Effort claimed responsibility for reducing the rate of increase in hospital expenses in 1978. Table 1 shows that the increase in total expenses for the U.S. was 12.6 percent in 1978, compared to 14.2 percent in 1977. However, eight States employing mandatory cost control programs wielded greater influence over the health care economy. These States experienced an 8.6 percent increase in total expenses in 1978, compared to 14.0 percent for the remaining States. The rate of increase in these eight mandatory States has a significant effect on U.S. averages, since the total expenses in these States are approximately 25 percent of total U.S. hospital expenses. Table 2 shows the rates of increase in the eight States with mandatory programs.

The American Hospital Association has identified 27 budget or rate review programs currently operating in the U.S. Most of these programs have concentrated on holding down the rate of increase in hospital costs, either by looking at the hospitals' current expenditures and reviewing a projected budget or by analyzing hospitals' current rate structure and reviewing any increases requested in those rates.

ORDS conducts demonstratons of alternative reimbursement methods to identify more effective and equitable means of financing hospital care. ORDS also supports studies of economic behavior and analyses of health care costs to broaden HCFA's understanding of hospital-rate issues.

## Reimbursement Demonstrations

Medicare and most Medicaid and Blue Cross plans pay hospitals on the basis of retrospectively-determined reasonable and allowable costs. Such traditional third-party payment systems create little incentive for cost control on the part of providers. ORDS currently supports experiments and studies that explore the potential of prospective reimbursement in containing costs. Prospective reimbursement involves a determination of either the level of hospital rates or the total annual revenues or expenses for hospital services prior to the period in which these services are to be rendered. The objective of these activities is to develop and test alternative reimbursement methods that feature built-in cost containment incentives, without sacrificing quality or the broad coverage offered by most third-party payers.

The 1972 amendments to the Social Security Act authorized demonstrations to test positive and negative incentives for more efficient utilization of health care resources. Prior to these amendments, various Blue Cross plans, State governments, and hospital associations undertook non-Federally funded experiments in prospective reimbursement. Federal evaluations were conducted on seven of these operating systems to estimate their effectiveness in reducing the rate of increase in hospital costs and to determine where and how to concentrate Federal resources for experimentation. The evaluations of these systems—located in western Pennsylvania, upstate New York, downstate New York, New Jersey, Rhode Island, Indiana, and Michigan—indicate that prospective reimbursement tended to slow the rate of hospital inflation from one to four percent without diminishing the quality of care.[1]

Elements of a feasible prospective reimbursement program identified in the systems studied included uniform accounting and reporting systems, total expenditure representation in rate-setting, application of rate-setting authority to all payers, mandatory hospital participation, schedules of reasonable costs, and an appeals process for hospitals. These elements have been incorporated in Federally-sponsored demonstrations in hospital reimbursement and have provided a foundation for further exploration of issues such as prospective reimbursement based on case-mix, alternative classifications of hospitals, and the use of integrated data systems which link discharge and billing information. ORDS demonstration projects generally emphasize systems operating at the State level, while research efforts focus on the development of Federally administered programs.

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[1] Evaluation reports on most of these seven non-Federally funded systems are available through the National Technical Information Service:

- Blue Cross of Western Pennsylvania Prospective Reimbursement Formula, PB 291565/AS
- Analysis of Prospective Payment Systems for Upstate New York, PB 293142/AS
- Evaluation of Blue Cross and Medicaid Prospective Reimbursement Systems in Downstate New York, HCFA/OPPR-76/49
- Analysis of New Jersey Hospital Prospective Reimbursement System, 1968-1973 PB 272058/AS
- Prospective Rate Setting in Indiana: Impact on Hospital Costs, Quality and Management, PB 289687/AS
- Evaluation of the Michigan Blue Cross/Blue Shield Prospective Reimbursement Experiment, Part I, PB 292010/AS; Part II, PB 292011/AS

Other ORDS demonstration and evaluation reports in prospective reimbursement available from NTIS include:

- Evaluation of the Hospital Prospective Reimbursement Experiment for South Carolina, Vol. I (Executive Summary), PB 289740/AS; Vol II (Final Report), PB 289741/AS
- Hospital Costs in Colorado, PB 271944/AS and PB 271945/AS
- Controlling Hospital Costs — The Revealing Case of Indiana, PB 289686/AS

**TABLE I**
**Percentage Increases in Hospital Expenses in Mandatory Rate-Setting States[1] and Non-Mandatory States**

| | U.S. | Eight Mandatory States | Other 42 States Plus District of Columbia |
|---|---|---|---|
| 1976-1977 | | | |
| Expense/Admission | 13.0 | 9.4 | 14.3 |
| Expense/Day | 13.9 | 11.1 | 14.9 |
| Total Expense | 14.2 | 9.7 | 15.8 |
| 1977-1978 | | | |
| Expense/Admission | 11.5 | 9.1 | 12.4 |
| Expense/Day | 11.7 | 9.0 | 12.7 |
| Total | 12.6 | 8.6 | 14.0 |

[1] Connecticut, Maryland, Massachusetts, New Jersey, New York, Rhode Island, Washington, Wisconsin

Data compiled by the National Conference of State Legislatures from *Hospital Statistics*, American Hospital Association.

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**TABLE 2**
**Percentage Increases in Hospital Expenses in Eight Mandatory Rate-Setting States**

| | CT | MD | MA | NJ | NY | RI | WA | WI |
|---|---|---|---|---|---|---|---|---|
| 1976-1977 | | | | | | | | |
| Expense/Admission | 11.2 | 9.0 | 13.8 | 10.8 | 6.9 | 9.5 | 12.9 | 12.5 |
| Expense/Day | 11.4 | 9.3 | 13.8 | 12.1 | 8.6 | 10.9 | 14.0 | 18.3 |
| Total Expense | 11.4 | 11.8 | 13.7 | 11.8 | 6.2 | 11.1 | 15.2 | 12.3 |
| 1977-1978 | | | | | | | | |
| Expense/Admission | 9.8 | 9.3 | 8.5 | 9.1 | 8.6 | 5.7 | 10.9 | 12.6 |
| Expense/Day | 10.3 | 10.8 | 7.2 | 7.6 | 9.1 | 7.7 | 8.8 | 12.6 |
| Total Expense | 10.5 | 12.3 | 7.1 | 9.2 | 7.1 | 8.6 | 11.6 | 12.6 |

Data compiled by the National Conference of State Legislatures from *Hospital Statistics*, American Hospital Association.

In September, 1975, HCFA competitively awarded six contracts to develop or implement prospective rate-setting systems. These projects are characterized by a diversity of rate-setting methods already in operation or planned for testing in the near future. Maryland, for example, is using a quasi-public utility model which focuses on approval of rate increases and proper accounting of costs. The State of Washington is conducting the first test of a payment system which prospectively sets hospitals' total budget. In western Pennsylvania, a regression screening model is being tested. ORDS is planning to sponsor and provide waivers for a payment by diagnosis system in New Jersey and a departmental-level budget review approach in Massachusetts. Both of these systems have received developmental support. Other developmental projects which resulted from the 1975 Request for Proposals are being conducted by the Connecticut Commission on Hospitals and Health Care and by the Blue Cross Association in upstate New York. Systems supported by these six contracts, as well as three others, are currently being evaluated under a contract with Abt Associates, Inc. The success of these Statewide experiments in containing hospital costs supported the inclusion of provisions for special treatment of States with cost containment programs in the Administration's hospital cost containment proposals in 1978 and 1979. In addition, the experience of these projects provided documentation to support the inclusion of other provisions in these bills, such as mandatory provider participation, inclusion of all payers and total hospital expenditures.

*National Hospital Rate-setting Study*

Abt Associates is conducting a multifaceted assessment of nine State hospital rate regulation systems to examine their impact on the cost and composition of health services. These systems are based in the following States: Arizona, Connecticut, Maryland, Massachusetts, Minnesota, New Jersey, New York, Washington, and western Pennsylvania. This list includes programs sponsored by ORDS, as well as State and local initiatives. Case studies describing the origin, approach, and rate-setting method of each program will be available in 1980.[2]

The evaluation focuses on the costs of operating each program, the organizational environment most conducive to effective rate-setting, and the method of setting rates likely to result in the most significant change in hospital costs. Substudies will assess the effects of prospective rate-setting across a wide range of subjects, including hospital costs and revenues; the volume, composition, and intensity of hospital services; access of population groups to services; quality of care; utilization of labor and capital inputs; and substitution of non-hospital services.

Evaluators expect to find that certain State rate-setting programs have been effective in constraining the impact of hospital cost inflation, at least to the extent that it does not exceed the level of inflation in the general economy.

The three-year study, which will be completed in August, 1981, uses a national sample of approximately 2,800 hospitals from which most of the conclusions regarding the cost impact of rate-setting will be derived. The basic design for the evaluation is a time series analysis comparing hospitals in the rate-setting States with hospitals not subject to rate-setting. Data on these hospitals for the years 1968 to 1979 are being compiled from American Hospital Association tapes, Medicare Cost Reports, the Area Resource File, and case-mix information from the Commission on Hospital and Professional Activities. These data are being supplemented by information collected through sites and interviews of rate-setters and hospital decision-makers in a sample of hospitals.

*Blue Cross of Western Pennsylvania*

Blue Cross of Western Pennsylvania (BCWP) received a contract and a waiver of certain Medicare principles of reimbursement in October, 1976 to demonstrate the use of a multiple regression model to identify factors that have an effect on hospital cost for a prospective budget year. The predicted cost is used to screen the budgets submitted by the hospitals. Budgets that differ from the predicted budget by five percent are reviewed and accepted or rejected on the basis of supporting evidence submitted by the hospitals. The budget submissions are prepared using Medicare cost principles and are based on eight months of actual and four months of estimated cost experience for the current year. The rate-setting mechanism incorporates a system for classifying hospitals based on the weighting of a hospital's teaching status and the provision of nonroutine services.

In addition to the Medicare waiver, the Pennsylvania Medicaid program received a waiver effective July 1, 1977. Therefore, for fiscal years 1978 through 1979, the hospitals involved in the program had rates prospectively detemined for Medicare, Medicaid, and Blue Cross. The project ended in July, 1979.

Findings from BCWP show that their Prospective Budget Program (PBP) reduced the rate of increase in hospital per diems through fiscal year 1978; however, the total inpatient expenses for the PBP hospitals have increased relative to the control group hospitals.

*Washington State Hospital Commission*

The Washington Commission was established in 1973 to institute a program of mandatory financial disclosure, budget submission, and prospective reimbursement determinations based on hospital uniform accounting and reporting. The program's goals are equitable rate-setting for all purchasers and assurance that hospital costs are reasonably related to total services and to aggregate costs. The Commission is a five-member, independent body with direct authority to issue rules and regulations for rate-setting.

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[2] See *Health Care Financing Grants and Contracts Report:* "National Hospital Rate-Setting Study: Case Study of Prospective Reimbursement in Arizona, Volume I." Case studies for the other programs are contained in the following volumes: Connecticut - II, Maryland - III, Massachusetts - IV, Minnesota - V, New York - VII, Washington - VIII, and western Pennsylvania - IX.

The current program requires hospitals to submit a prospective budget at least 60 days prior to the beginning of the next budget year, using the uniform accounting and reporting system. To compare different approaches to prospective reimbursement, all the hospitals are classified through a clustering routine into peer groups based on size, teaching level, case mix and geographic location. Each budget undergoes a primary screen based on the 70th percentile of its group's peers; if the budget passes the screen, it is approved. If not, a secondary screen by cost center is carried out. At the conclusion of these screens and analyses, the commission approves a schedule of rates that will allow the facility to meet its financial needs.

HCFA's experiment, begun in 1976, involves Medicare, the State Medicaid program, Blue Cross of Washington and Alaska, and Workmen's Compensation (administered by the State's Department of Labor and Industries). For purposes of the experiment, the State's 99 acute care hospitals have been divided into three payment types. HCFA has provided waivers to permit Medicare and Medicaid participation in the first two types. Each type's rate-setting method is as follows:

- *Type I:* The Commission sets a total revenue budget for the prospective year. Medicare, Medicaid, and Blue Cross are each responsible for a percentage of the total budget based on their respective utilization. Hospitals receive semi-monthly interim payments from these third parties. At the end of the year, hospitals are subject to a year-end compliance with no volume adjustments. Each facility retains all of its savings due to lower costs and is at risk for any higher costs.
- *Type II:* The Commission sets a total revenue budget figure, as for Type I hospitals, and develops approved rates based on this total figure. Medicare, Medicaid, and Blue Cross pay a prospectively determined rate, which equates to a percent of charges; other payers pay full charges. Hospitals are subject to a year-end compliance which adjusts for volume changes. Type II hospitals may retain all of their savings due to lower costs and are at risk for higher costs.
- *Type III:* This group is reimbursed according to the commission's standard authority: prospective rates are approved and applied to the charge-based payers, as in Type II. Medicare, Medicaid, and Blue Cross, however, reimburse retrospectively based on costs.

The purpose of this three-cell experiment is to assess the difference in expenditures resulting from the methods of reimbursement. In addition, the Commission is further developing its case-mix technology, refining the screening techniques used in its grouping methodology. A preliminary examination of the rate of increase in expenditures by Washington hospitals per adjusted patient day indicates that the project has been effective in controlling costs. In 1976, the rate of increase was 18.3 percent. In 1977, the year the project became operational, the rate of increase was 11.9 percent, and in 1978, it was only 7.0 percent. The Type II method of payment was found to have contributed the most to this cost savings, because hospitals are at risk for both overages and underages to approved revenue.

### *Connecticut Commission on Hospitals and Health Care*

The Connecticut Commission on Hospitals and Health Care was established in July, 1974 to improve efficiency and lower health care costs. Hospitals in Connecticut are required by State law to submit detailed cost and statistical data for the past, current, and prospective years, using a uniform reporting system. This budget review process considers the overall financial requirements of the hospitals in order to establish an approved net revenue. The process begins by applying an "overall test of reasonableness" (ORT) screen to each hospital's operating budget. If a hospital's budget passes the ORT screen, it will be approved. Hospitals which fail the ORT screen are then screened by comparing clusters of costs in general, routine, and ancillary services. Following several adjustments of base year costs for volume, inflation, and non-volume changes, a reasonable prospective operating budget is established, and a total revenue for the hospital is approved. The approved budget is translated by the facility into a schedule of charges, and the facility is at risk for revenue in excess of the approved level.

HCFA contracted with the Connecticut Commission in 1976 to develop new methodologies to be incorporated into the budget review system, including further refinement of the inflation factor, more sophisticated volume adjustments for fixed and variable costs, and improved grouping and productivity screens. The Commission was granted an extension of its contract through July, 1980.

### *Massachusetts Rate-Setting Commission*

The Massachusetts Commission determines reimbursement rates for all payers using different methodologies for each but basing its determinations upon a uniform cost reporting system.

Medicaid rates are established by indexing base costs forward and require that major capital costs be approved by the State's certificate of need program. Rates are determined in relationship to the approved cost base that results.

Blue Cross rates are set through approval of proposed contracts between Blue Cross and the hospitals. Blue Cross rates are established following an analysis of incremental cost increases, volume changes, and other variables. In a similar manner, charge payers' rates are determined on an approved reasonable cost basis; the maximum allowable cost-to-charge ratio is 95 percent. The facility is at risk for expenditures of a total approved budget.

HCFA has a contract with the Commission that calls for the development of a hospital data information system and an analysis of the definitions of costs and revenues in other major cost containment and reimbursement systems in the United States. Under this contract, the Commission's hospital inflation index is being refined, and cost categories and associated economic change indicators have been revised to better reflect the Northeast's economic conditions. A projection methodology is being developed to enable the Commission to establish the

expected rates of increase during the next fiscal year. Fixed/variable cost ratios and volume (reasonableness) corridors for each hospital department are being developed. Hospital costs will be compared, and case-mix indices and linkages between planning and rate-setting will be formulated.

The developmental work by the Massachusetts Commission has produced studies in improved inflation indices and hospital grouping methodologies that may be applicable to other hospital rate-setting efforts. The Commission is expected to submit a detailed methodology for a uniform system for establishing prospective reimbursement rates under Medicare and Medicaid. If the methodology is found acceptable, a waiver of Medicare and Medicaid principles of reimbursement will be requested beginning in October, 1980.

*Blue Cross Association — MAXICAP*

A developmental contract with the Blue Cross Association (BCA), which ended in July, 1979, called for the development of a prototype hospital payment system in the Rochester-Finger Lakes region of upstate New York. Participating with BCA in the MAXICAP project were the Hospital Association of New York State, Rochester Regional Hospital Association, Finger Lakes Health Systems Agency, and Rochester Hospital Service Corporation (Blue Cross). The project has resulted in the design of a hospital prospective payment system that will provide a single area-wide total budget for hospital care involving all payers. The amount a hospital should be paid is to be linked to a community health service plan developed cooperatively by the above organizations. By having all hospitals in a community join forces to stay within a community budget (the "cap") rather than focusing on the costs or charges of a single institution, it was hypothesized that significant cost containment could be achieved.

The basic elements of the project are the establishment of a community MAXICAP dollar amount for hospital care funding, the design of a community hospital plan in conjunction with the health systems agency, and the alignment of the existing inventory of facilities and services to both the MAXICAP amount and the community hospital plan. The three basic issues the system must address are: (1) what amount of funds will a community spend on hospital care, (2) what hospital goods and services should be provided with these funds to provide the greatest community-wide health benefits, and (3) how should the funds be allocated to the participating hospitals to promote efficiency and equity.

The MAXICAP system provides for a voluntary effort which allows the community as well as provider organizations to participate in a cost containment effort. Because of the inherent nature of the voluntary effort and the diverse interests of the participating parties, some delays have been encountered in developing a reimbursement methodology that is acceptable to all. To provide sufficient time to resolve technical problems, the developmental phase was extended for six months to June 1979. The reimbursement methodology developed during the developmental phase was submitted in the fall of 1979 to HCFA as a proposal to implement the MAXICAP program as an experiment for the year beginning January 1, 1980.

*Maryland Health Services Cost Review Commission*

The Maryland Commission is currently in the third year of a prospective payment experiment for Medicare and Medicaid based on a public utility model. The Commission has authority under State law to require the submission of uniform cost reports, conduct investigations, and establish equitable rates for all payers. The Commission carries out one level of review on all hospitals annually by analyzing changes in operating costs from base to budget years. Components of the analysis are volume, inflation, case-mix, and external costs resulting from such situations as increased malpractice costs. A second, in-depth analysis is conducted at the request of the facility or on a selective basis by the commission, if the hospital appears to be earning excessive profits; retroactive adjustments can be made for reasons of volume changes or uncontrollable costs.

The Commission received a waiver of Medicare and Medicaid cost reimbursement principles in June 1977. The waiver currently extends through June 1980. However, a Statewide expenditure test serves as a ceiling on Medicare expenditures, by limiting them to the amount that would have been paid under Medicare principles.

Data from the first year of the experiment indicate savings of 5.06 percent for Medicare and 5.92 percent for Medicaid. A similar savings calculation is underway for the experiment's second year. Another component of the first year of the experiment involved the development of a prospective rate methodology for skilled nursing facilities. The commission has no plans to implement the methodology at this time.

*Prospective Case Payment Reimbursement Study*

In March, 1975, Yale University began work under a HCFA contract to develop a prospective reimbursement system for acute care hospitals based on diagnosis-specific case costs. Case cost is defined as the cost for treating a particular patient during his or her entire hospital stay, including routine and ancillary service costs. Any hospital case may be characterized according to a set of clinical/demographic descriptors such as age, sex, primary diagnosis, operations, and procedures, as well as by a set of financial data describing the dollar amounts of hospital resources a patient consumes, such as dollars of lab services, operating room, and pharmacy. Traditionally, these two frames of reference have remained separate in the hospital organizational structure, the medical clinical attributes coming under the purview of physicians and the financial resources consumed by all patients being the primary concern of administrators and third-party payers. Yale University proposed to define a case along both the medical and financial dimensions.

Analysis revealed, in fact, that patients categorized by clinical/demographic variables comprised groups that were very similar in terms of the financial

resources they consumed. With this concept of a case in mind, the tool chosen for defining the output of a hospital by patient classes was an interactive computer system designed to allow the rapid analysis of complex medical information (AUTOGRP). The data for the analysis were three years of historical patient records from Yale-New Haven Hospital. By means of AUTOGRP, 383 diagnostic categories were identified. Each of these categories, known as diagnosis related groups (DRGs), contains cases which are medically similar in terms of clinical attributes and financially similar in terms of the patterns of hospital resources they consume.

The first phase of this project involved the association of hospital costs with the diagnostic classes of patients. Cost profiles were generated showing the consumption of each diagnostic group for all of the hospital departments. With the diagnostic classes of patients and their cost information at hand, it would be possible to reimburse hospitals based on the type of patients treated, i.e., the number of cases belonging to each of the diagnostic groups.

Studies have shown that there is a substantial difference in the diagnostic mix of patients treated in hospitals which are otherwise the same in organization, structure, and role in the community. The cost implication of these differences is that hospitals treating less complex cases should be less expensive to operate than other hospitals. Reimbursement by diagnostic-specific stay permits the continual monitoring of the types of illnesses a hospital treats as well as comparative measures of hospital efficiency. A situation in which two hospitals treat the same case at different costs poses questions regarding efficiency and effectiveness of treatment patterns.

The case cost as a unit of payment can also provide a means of taking case-mix into account in the budgeting process. With historical data on the number and proportion of patients trated in each diagnostic group, the case-mix for the budgeted period may be forecast. Budgets can then be computed from cost profiles and revenues determined from charging profiles. The effect on revenues of different reimbursement mechanisms can also be projected as a function of the case-mix.

During 1979, Yale was testing the effectiveness of this system as a means of hospital budgeting and cost control at the Yale-New Haven Hospital. A detailed report on the inpatient methodology developed at Yale University was submitted in 1980. The system has been adopted by New Jersey and is being reviewed for possible use in New York, Maryland, Georgia, and Connecticut. Some Professional Standards Review Organizations are using it for length-of-stay reviews.

In 1976, Yale also began work on a budget and cost control system based on diagnostic-specific groups in ambulatory care settings. This aspect of the project is discussed in this report under the Health Systems Organization chapter.

*New Jersey State Department of Health*

In 1978, the State of New Jersey enacted legislation to establish a hospital cost control commission and to administer a system to replace the current rate-setting process for Medicaid and Blue Cross. New Jersey's acute care hospitals began being phased into the system over a three year period on January 1, 1980. The commission is empowered to develop a prospective payment system that will apply to all payers.

Under a contract with HCFA, the State health department has developed a prospective reimbursement system based on Yale University's diagnosis-related groups (DRGs) patient classification system.[3] Uniform reimbursement made on a DRG-specific basis will encourage greater efficiency in the use of hospital services. Under the New Jersey DRG system, costs related to care in a particular DRG are identified, documented, and screened to determine reasonable levels. Hospital costs not directly related to patient care are identified by cost center and screened on the basis of appropriate statistical measures. Total costs are adjusted on the basis of an inflation index for approved increases that the hospitals will incur during the prospective rate period. Inflation is accommodated through semiannual rate adjustments by means of this index. The established rate is not subject to retroactive adjustment. Under this system, reimbursement is not related to length of stay nor the quantity of services to a particular patient.

This project is intended to demonstrate the feasibility of a hospital prospective rate-setting system based upon patient case-mix—a major HCFA experimental objective. The approach developed by New Jersey will deal directly with case-mix by establishing per case payment rates specified for patients in each DRG category. The State applied for waivers of Medicare and Medicaid principles of reimbursement necessary to begin the demonstration of its new method after final State regulations were approved in the fall of 1979.

*New York Case-Mix Study*

In February, 1979, the New York State Office of Health Systems Management received a two-year grant to develop a case-mix-based prospective reimbursement system. The study will produce methodologies for measuring inpatient case-load complexity and calculating the average cost per inpatient case based on the Yale DRGs. The study will also include analyses of providers for DRG cost differences. During the first phase of the study, an acceptable cost allocation methodology for converting patient bills to a cost basis was completed, as were procedures for linking bills and discharge abstracts. In 1980, the researchers are attempting to merge their case-mix system with their Statewide reporting, billing, and abstracting system. There are currently 41

[3] NTIS No. PB 290874, "Prospective Reimbursement System Based on Patient Case-Mix for New Jersey Hospitals 1976-1978." See also *Health Care Financing Research and Demonstrations Report, Report No. 3.*

hospitals in the sample which represent a cross section of hospitals in the entire State. In 1980, New York is also performing inter-State comparisons of its data with Maryland and New Jersey data, focusing on questions of validity of case-mix measures, cost variations among patients of different financial classes, and fixed-variable costs in the context of DRGs. The State also plans to initiate case-mix reimbursement demonstrations with a group of New York hospitals. Each hospital would be paid its own DRG costs, inflated forward using the New York State trend factors but probably also deflated for expected length of stay. The demonstration would begin January 1, 1981.

*Georgia Prudent Buyer Reimbursement*

The Georgia Department of Medical Assistance was awarded a grant in 1977 to develop a Medicaid reimbursement system based on two key prudent buyer concepts: (1) refusal to pay the highest prices for health care services, and (2) cost containment incentives associated with provider competition and prospective rates. The State recommended that each hospital submit a bid representing the average, all-inclusive charge for patients treated in specific patient care centers, and that high-cost providers be excluded from the Medicaid program. However, restraint of physician practice and limitation of patient access to care emerged as consequences of hospital exclusion. Georgia decided that the prudent buyer approach was unworkable and began development of an alternative approach.

In December, 1978, the Georgia Department of Medical Assistance received a two-year ORDS grant entitled, "Medicaid and Medicare Reimbursement System for Georgia Hospitals." Two key features characterize this new cost-curbing system. First, a DRG capability defines groups of hospitals according to the medical similarity of patients being treated. Second, a reimbursement maximum is being established based on the lower of a percentage of average case cost for each hospital group or each hospital's base year average case cost trended for inflation and intensity. These limits are designed to control reimbursement to the least efficient providers within each group. In addition, a financial incentive is under consideration for hospitals maintaining comparatively low cost postures. Statewide implementation of the new approach is planned for July, 1980.

**Program Assistance**

The proliferation of hospital cost containment interest and activity at the State level has generated efforts within HCFA to facilitate the exchange of information about such activities, as well as to provide technical assistance to States in their endeavors. A report entitled "Abstracts of State Legislated Hospital Cost Containment Programs" was prepared by ORDS in May, 1978. It summarizes the key legislative features and operating aspects of State programs which require the disclosure, review, or regulation of hospital rates and budgets.

A grant was awarded in 1978 to the National Conference of State Legislatures to assist State legislatures in health care cost containment. Plans include an annual, national conference on State and Federal cost containment initiatives, a newsletter describing these activities, regional seminars on current innovations in containment, and a clearinghouse on health economics legislation and research.

**Hospital Reimbursement and Cost Research**

Since the costs generated by hospitals represent the largest health care expenditures, regulation of the hospital industry has been the strategy most often proposed as a first broad step to control overall inflation in health care costs. However, the complexity of the industry makes understanding the crucial impact of hospital reimbursement reforms difficult. There are over 7,000 hospitals in the United States, varying in service population, case-mix, facilities, technological resources, teaching status, staff size, and background. Each hospital operates under somewhat different political and economic imperatives.

But there are also important similarities among hospitals. Almost all receive the majority of their reimbursement from the third party payers. This is probably the most significant factor in explaining why health care cost inflation has generally been in excess of other sectors of the economy. By removing the burden of direct payment from patients, the third-party payer system encourages hospital staffs to disregard costs in their resource consumption decisions and encourages patients to demand more services. Furthermore, the lack of more uniform regulation of rates paid by third parties has permitted hospitals to shift costs among the various payers when it is in the interests of the hospital to do so.

Before advocating or adopting major changes in methods of reimbursement to hospitals, HCFA is seeking to develop knowledge about the economic behavior of hospitals. Many ORDS research activities on this issue are being conducted intramurally. A number of contracts and grants have also been awarded for analyses on such topics as the causes of and variations in hospital cost components, the factors influencing hospital costs, hospital output and efficiency measurement, physician influences on hospital costs, and the effect of alternative reimbursement approaches. A primary objective of hospital research efforts is to develop more accurate hospital classification systems with respect to factors that affect their costs and more accurate estimators of efficient hospital cost levels.

*Factors Affecting Hospital Costs*

The National Bureau of Economic Research in Stanford, California received a grant to study the extent to which variations in average regional lengths-of-stay in the United States are explained by the rate at which resources are expended on individual patients, as well as by varying discharge standards in the regions. The study examined whether low occupancy rates are attributable to random fluctuations in demand for hospital care or to controllable variations in bed use. The underlying causes of differences in bed use, resource expenditure rates, and discharge standards were also studied. Data from all admissions to five hospitals in different geographic areas were analyzed. The grant was completed in March, 1980.

### Hospital Cost Inflation Study

In October, 1978, Vanderbilt University was awarded a three-year grant to study the behavior of hospitals in response to changes in the markup of their physician staffs and the degree of unionization among their employees. Specific issues being examined include the effect on hospital cost inflation of the physician market, hospital medical staff characteristics and hospital-based physician arrangements, and the relationship between hospital-based physician arrangements and hospital performance. In addition, the project is assessing the impact of increased hospital utilization on hospital wage rates and costs. Data sources include the American Hospital Association annual and special surveys on hospital administrative services and the Professional Activities Survey, as well as hospital wage and benefit surveys conducted by the University. A descriptive paper on hospital organization and physician-hospital relationships and an analysis of hospital costs and input choices were completed in March, 1980.

### American Hospital Association Data Base Development

The American Hospital Association (AHA) received a contract to undertake three tasks aimed at improving the quality and quantity of data on hospitals. HCFA uses this data to perform more precise estimates of hospital costs and monthly rates of inflation. AHA data also contribute to HCFA's efforts to monitor Presidential Guidelines on hospital expenditures. In addition, AHA is conducting a wage survey feasibility study to determine the responsiveness of hospitals in providing occupational wage data. The survey results will be available in 1980. Finally, AHA will design and conduct a survey on hospital capital spending and on hospitals' investment intentions for calendar year 1978 and each of the four quarters of 1979.

### Foreign Hospital Reimbursement Systems

The objective of this three-year grant awarded to Columbia University is to study methods of reimbursing hospitals under national health insurance in five Western European nations: Great Britain, West Germany, Holland, France, and Switzerland. Descriptive analysis which may be relevant to American efforts will be developed on these systems and their experiences in hospital financing. The foreign experiences will be compared to various cost containment approaches being tried in the United States. Primary data will be gathered via interviews with foreign program officials and their American counterparts on the State level, e.g., budget review and prospective rate-setting programs. The grant period ends in 1981.

### Capital Expenditures Studies

New capital investment for one department may generate additional costs in lab, X-ray, or other departments. Increased demand could improve the efficiency of an underutilized laboratory, or, in the most expensive case, require a major expansion of a facility that is already overutilized. The latter, in turn, would generate additional new capital expenditures.

Applied Management Sciences conducted a feasibility study to test an exploratory method to reflect costs generated in other departments, as well as the costs generated within the department in which an investment was made. The analysis examined the primary and secondary cost factors for several distinctive types of capital investment with a high probability of being implemented. Results indicated that different types of capital investment generated different ratios of annual operating expenses to capital expenditures. The ratios ranged from a high of 2.33 for a burn treatment center and 2.21 for a shock-trauma center to a low of .61 for a linear accelerator used primarily for the treatment of ambulatory patients. With the exception of the shock-trauma center, which was largely self-contained, the ratio of indirect costs was higher for services to inpatients. The medical-surgical unit and burn treatment center, respectively, had 2.13 and 1.52 ratios of indirect to direct costs. In contrast, the study of outpatient services revealed that linear accelerator, standard care, and limited care renal dialysis units had ratios of .34, .58, and .68, respectively. These findings make any generalization about the impact of a single upper limit on capital expenditures difficult.[4]

### Diffusion of Medical Technologies by Hospitals

The Urban Institute received a three-year grant in October, 1978 to investigate the impact of various methods of reimbursement, particularly prospective reimbursement, on the diffusion of new medical technologies by hospitals. The study attempts to determine how changes in reimbursement methods would affect hospital administrators' decisions to adopt new technologies and whether policymakers should choose reimbursement reform or direct regulation to control the adoption of new technologies.

The first part of the study was conducted by the American Hospital Association in 1979, under contract with the Urban Institute. This study investigated the reimbursement systems used within six States to determine those aspects of their payment systems likely to affect the kinds of technologies adopted and the speed of their adoption. The second part of the study will involve an empirical analysis of the adoption of approximately nine rigorously defined technologies in a sample of hospitals in each of the six States. This analysis will test several hypotheses concerning the impact of reimbursement methods on adoption behavior, controlling for other factors that might systematically affect hospital behavior.

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[4] NTIS No. PB290877/AS, "A Feasibility Study of the Influence of Capital Expenditures on Hospital Operating Costs."

The technologies selected for case studies include electronic data processing, automated hematology equipment, automatic bacteriology, thermal dilution cardiac output measurement equipment, computerized arrythmia monitoring systems, ultrasound B-scanning, electronic fetal monitoring, gastrointestinal endoscopy, and electronic digital thermometers. The three experimental States chosen for the study of these technologies are upstate New York, Maryland, and Indiana; the three control States are Ohio (excluding Blue Cross of Southwest Ohio), Pennsylvania (excluding Blue Cross of Western Pennsylvania) and Missouri (excluding Blue Cross of Kansas City). Field studies in each of these States are in their early stages. Researchers are refining research hypotheses and exploring the possible inclusions of variables to measure hospital organization and competitive environment. They are making arrangements with the AHA to acquire data tapes for the study States.

### Hospital Input/Output Model

ORDS is developing an input/output model based on Medicare cost report data submitted by hospitals. These data, reflecting dollar amounts shown on cost statements, provide the basis for the development of technical coefficients of production which relate the input of resources to the output of services provided to patients.

Derived from the Leontief input/output approach, the model should permit projections of the impact on hospital costs of increased salaries and material prices and shifts to greater reliance on outpatient services. It will allow estimates of the extent to which input components can or should be changed to increase output levels. It will also predict maximum feasible output. The model, with the incorporation of manpower elements, could serve as a total for determining the manpower, equipment, and facilities needed for the production of a given set of final goods and services. The model would also be able to predict the effect of changes in the quantity of manpower, equipment, and facilities to produce a new final product of hospital care, if the level and composition of different services are changed. A prototype of this model should be completed by mid-1980.

### Matrix Inversion for Hospital Cost Finding

The use of mathematical methods in the hospital cost finding process presupposes the existence of a rationale and basis for distributing costs among the overhead and non-overhead hospital cost centers. The traditional step-down method of cost accounting assumed a hierarchy in the overhead cost centers and distributed costs in only one direction; lower echelon cost centers passed no costs back to the higher-order departments. It is hypothesized that more realistic results could be obtained if reciprocal input/output relationships were taken into account.

Two approaches to this process have been considered. First, a matrix that includes only overhead cost centers is established. The matrix would yield the costs of each center to then be allocated to all other cost centers. The costs to be allocated out of each cost center would include the costs allocated to it by all other cost centers. The second approach involves a matrix that includes all cost centers, both overhead and non-overhead. This matrix would yield the final cost of all cost centers. In that solution, all overhead costs would be allocated to other overhead and non-overhead cost centers. Completion of this intramural development is targeted for 1980.

## *Development of Rate-setting Methods*

### Case-Mix Studies

The output of a hospital, unlike most public service products such as gas, telephone and electricity, has defied simple definition. Hospital regulatory agencies have most often resorted to oversimplification of the hospital's product by viewing it largely as the itemized services provided. In a pure public utility situation, the consumer usually seeks the lowest possible price. But in a hospital, the patient desires an improvement in health and is largely indifferent to the bundle or cost of services.

The recognition of these unique problems makes it possible to define four goals for a hospital regulatory agency to seek: (1) to constrain the rate of increase in hospital costs, (2) to view a hospital's output as a bundle of services and not as the individual tests or hospital days provided, (3) to compare the level of cost of these bundles of services in order to recreate the price and supply constraints that would exist in a totally competitive market, and (4) to properly account for the itemized services delivered to patients to accurately allocate costs to the different payers.

A fundamental step in achieving these goals is to properly define and identify the bundle of services provided to a patient. These services must include admission-specific services such as basic tests, stay-specific services such as housekeeping and meals, and diagnosis-specific services. No simple aggregate units such as the patient day, length of stay, or the recorded diagnosis account for all the variations. What is needed is a methodology to categorize the various types of patients or cases into subgroups which receive essentially identical services or at least represent an equal demand for hospital resources. These categories are usually called isoresource categories.

The first reasonable set of isoresource categories was the diagnosis related groups (DRGs) developed by Yale University. The DRGs basically define patient treatment patterns which demand a similar amount of hospital resources. Soon after the Yale work began to show promise, ORDS funded a developmental effort proposed by the State of New Jersey to apply the DRG system to the cost control program in effect there for Blue Cross and Medicaid. These two projects, as well as the efforts in the State of New York, are described in more detail in the section on reimbursement demonstrations. In addition to the DRGs, however, there are other approaches to defining the isoresource categories. ORDS is currently supporting several other efforts which address the proper formulation of these isoresource categories.

Measuring the Cost of Care Using Patient Management Algorithms

Blue Cross of Western Pennsylvania (BCWP) received a three-year grant in 1978 to identify clinically homogeneous patient input categories and to specify the treatment strategies applied and resources consumed in managing the patients in each category. BCWP researchers hypothesize that this approach to case-mix will more accurately reflect the hospital production process than any classification scheme which relies on discharge diagnosis. Since they believe that diagnosis and treatment are determined by the condition of the patient upon admission, researchers will be trying to identify the various admission states of a patient and then define generalized strategies for managing each category.

Methods of Case-Mix Quantifications and Applications to Cost and Mortality Analysis—This two-year grant was awarded in 1978 to the Johns Hopkins University School of Public Hygiene to reassess the DRG approach to patient classification, using resources data from Maryland hospitals. Panels of physicians were convened from a broad spectrum of hospitals to identify possible patient and disease characteristics which might influence the cost of cases within major disease categories. These major categories, which are somewhat different from the Yale-New Jersey DRG groups, were subdivided until the subgroups contained only small variations in cost per case. The results from these subgroups were compared to the DRGs as well as to the re-autogrouping of the DRG categories based on 1977 and 1978 Maryland data. The Johns Hopkins researchers will also have the panels develop iso-risk-of-dying groups. The purpose of this effort is to enable at least a gross comparison of quality of care delivered within and among hospitals.

Alternate Case-mix Classification Systems Study—The Commission on Professional and Hospital Activities (CPHA) is conducting a study to determine whether hospital cost structures are similar across case categories. Using a sample of 330 hospitals, CPHA is comparing alternative classification schemes in terms of the distinctiveness of categories and degree of agreement between classification schemes. After this effort, CPHA will attempt to establish weights for these categories based on charge data and to examine whether single or multiple sets of weights are needed when measuring case-mix across all hospitals regardless of type or location. This is a three-year contract scheduled for completion in 1981.

Hospital Classification Systems

In order to make more equitable comparison among hospitals for rate-setting purposes, classification systems must be developed which identify groups of hospitals. This will ensure that hospitals within each group are homogenous with respect to factors affecting their costs. Such factors may include hospitals' volumes and outputs, as well as the economic conditions they are facing.

ORDS has a five-year contract with the University of Washington, which began in 1976, to identify measures of hospital output and economic conditions, and to determine what methods can be used to generate groupings of hospitals once data on these measures can be obtained. The researchers have completed Phase I of the project, which focused on the development of grouping methods.[5] They concluded that the selection of criteria on which hospital similarity is to be based is at least as important as the statistical technique used to group the hospitals (e.g., factor analysis, cross classification, cluster analysis). Three types of variables were necessary in the methodology: those that are outside the hospital's control, such as input prices, those that are within the hospital's control, such as length of stay, and those variables that are of specific policy interest, such as the extent of teaching programs or quality of care. Cluster analysis was the statistical technique determined to be the most appropriate grouping methodology because it does not require the specification of a dependent variable or impose a particular functional form on the relationship among the variables.

To empirically test their methodology, the researchers had to use crude proxy measures, because at that time, better information was not available. For example, case-mix was proxied by the number of facilities and services offered by hospitals in each group. During the second phase of the project, the date collected under ORDS' contract with the Commission on Professional and Hospital Activities will be used to develop more precise measures of factors which affect hospitals' costs.

Application and Simulation of Alternative Rate-setting Models

Section 223 Limits — Section 223 of Public Law 92-603 authorized the Secretary of HEW (now HHS) to impose limits on hospital costs for purposes of Medicare reimbursement. The implementation of Section 223 in 1974 led to limits on hospitals' routine costs per patient day. These limits are currently established by dividing hospitals into seven categories based on an urban/rural classification and bed size. Routine costs per patient day are then arrayed for all hospitals in each category. The group limit is set at the 80th percentile of these routine costs. Ancillary costs, the other major component of total hospital costs, are reimbursed at full costs.

ORDS researchers are currently involved in the development of a new reimbursement method for possible use under Section 223. The new method has been designed to remove some of the inequities claimed by some hospitals as well as to improve the effectiveness of the price controls in eliminating waste. The new method will attempt to identify more precisely the Medicare cost differences across

[5] NTIS No. PB295986/AS, "A Study of the Classification of Hospitals for Prospective Reimbursement." See also *Health Care Financing Research and Demonstration Reports,* Report No. 10.

hospitals that arise from case-mix differences. Reimbursement would be made on a per case rather than per diem basis. Furthermore, limits would be based on total costs rather than routine costs. This should eliminate the incentive to shift costs to ancillary service categories. The new system would also remove the incentive to treat patients less intensively in order to increase lengths of stay and to reduce routine costs per patient day.

Use of a case-mix adjusted reimbursement formula creates a need for an acceptable measure of case-mix. ORDS is examining diagnosis related groups (DRGs) as the basis of a case-mix adjustment factor. The measure would be based on data from all Medicare participating hospitals obtained from claims for inpatient hospital care of a 20 percent sample of beneficiaries. A hospital's case-mix would be defined by the proportionate distribution of its sample Medicare cases across DRG categories. Since different types of cases require different amounts of resources in treatment, the resource intensity value of the hospital's case-mix would be the sum of the weighted proportions for its sampled Medicare cases. The resource intensity weights for the DRGs would, in turn, be developed using data from all hospitals on the estimated cost of each discharge in any DRG category. The estimated costs would be derived from the hospital charges reported on the claims, then adjusted for differences in area wages among the hospitals and in their ratios of charges to cost. Before reimbursement penalties would be invoked under this method, a percentage allowance factor would be applied to provide a reasonable margin of error for each institution. The successful adoption of this new Section 223 methodology would be largely aided by the implementation of the proposed Annual Hospital Report.

Reimbursement Systems Simulations — In order to determine the probable fiscal impact on hospitals and the Medicare program of various proposed reimbursement systems, ORDS has developed the capacity to simulate system results using a sample of 1200 hospitals' Medicare cost reports. Systems which have been simulated in the past include various provisions of the Talmadge bills, the Administration's 1976, 1977, and 1978 Hospital Cost Containment Bills, alternative versions of Section 223 routine cost limits, and systems which focus on such variables as total ancillary expenditures per admission. Unlike actuarial assessments, these simulations address hospital characteristics according to type of control of the hospital (i.e., proprietary, nonprofit/nongovernment, and government), geographic location, bed size, and teaching status. Simulation results include identification of which kinds of hospitals would not receive full reimbursement under alternative systems, as well as estimations of the penalty amounts which groups of hospitals and all hospitals would incur.

In 1978, Applied Management Sciences was awarded a three-year contract by HCFA to provide statistical and analytical support to ORDS' staff for simulations and inflation studies, as well as to conduct a number of independent investigations, including analysis of the influence of various payment systems on hospital costs and an assessment of the Medicare cost report error rate by intermediaries.

# Chapter IV
# Industrial Organization and Reimbursement

## Introduction

One way of looking at the nation's health care delivery system is in terms of its organizational structure, including the structure of nursing homes and other long-term care institutions, clinical laboratories, durable medical equipment suppliers, and drug and medical suppliers. In order to understand the market structure of each industry and its responses to government programs and regulations, it is necessary to study the nature of the demand for the industry's output, measure the degree of market concentration, and determine if and where barriers to competition exist. ORDS has initiated an effort to evaluate various industries' market conduct and performance in the light of data on research and development expenditures, advertising and promotion, pricing policies, and profits reinvestment. Of particular interest are the effects of various forms of insurance, including Medicare and Medicaid reimbursement over time upon the structure, conduct and performance of each industry. Industrial organization studies are also intended to identify areas in which the refinement of reimbursement methodology could encourage competition and cost-effective purchasing.

## Long-Term Care

A major focus of industrial organization studies in 1980 is on the long-term care industry. Long-term care accounts for a major proportion of the funds spent on health care for the elderly. During the period 1967 to 1976, nursing home expenditures alone grew 22 percent per year, and, in 1976, nursing home expenditures represented 23 percent of all health expenditures for persons over age 65. Only expenditures on hospitals exceeded that amount as a percent of health care dollars spent on the elderly. Present sociological and demographic trends leave no doubt that expenditures for all forms of long-term care will assume increasing importance in the future. Therefore, ORDS is planning to undertake several studies to address the industry's response to various reimbursement mechanisms and public policies. For example, following a review of existing data, an intramural research effort will be initiated to assess the structure, performance, and conduct of the nursing home industry. Preliminary results from this effort will be available in the latter part of 1980. Another study will examine existing alternatives to nursing homes and their related costs. A third analysis will look at the long-term care industry's response to various forms of current and proposed reimbursement methodologies, as well as possible new methodologies.

## Analysis of the Clinical Laboratory Industry

The clinical laboratory has changed in three decades from a primarily hospital-based ancillary service into a major industrial operation. Corporations and chains have begun to vie for a share of the market, a market that has expanded considerably in the past 20 years. Developments within the industry have included the introduction of automated technologies which have enhanced lab capacity and the speed of operations and have increased by approximately 50 percent the kinds of quantitative and semi-quantitative tests available to physicians and their patients. At the same time, the demand for tests as a routine component of medical care has increased significantly. Moreover, facilities and physicians have found clinical laboratory tests in many settings to be a highly profitable medical service, with revenue generated by tests rising faster than costs incurred.

The growth in the clinical laboratory industry has major implications for reimbursement practices. The industry now consumes about ten percent of the country's health care dollars, and the upward trend shows no sign of deceleration. A better understanding of the effects of reimbursement for laboratory tests on physician decisions to recommend such tests could form the basis for improvements in the Medicare and Medicaid programs. This knowledge could also influence the financing of laboratory services under a national health insurance program.

The Rand Corporation has been awarded a HCFA contract to acquire this knowledge through analyses of the clinical laboratory industry. Attention is being focused on tests performed in physicians' offices and in hospitals during the contract period, which extends from September, 1978 to April, 1982.

The researchers propose to formulate and test a model of the determination of price, frequency, and location of laboratory tests, using a nationwide sample of office-based physicians. The basic hypothesis to be tested is that physicians use laboratory tests to increase their income and to circumvent limits on fees for office visits. Using the physician's practice cost survey data, Rand plans to estimate the effects of coverage by Medicare, Medicaid, Blue Shield, and private insurers and of no coverage on the price, frequency, and location of laboratory tests. An estimation of the effects of different levels of reimbursement for office visits and laboratory tests under these programs on the frequency of tests is expected to provide information on the extent to which fee ceilings under Federal programs are offset by the ordering of additional tests.

Rand will also analyze the effect of the testing site on the prices and frequency of tests and on physician income. This information is crucial to weighing the possible effects of independent laboratory regulations which require laboratories to bill the patient directly. These regulations increase physician incentives to perform tests in-house, thereby raising the relative cost of tests in independent laboratories and depriving the physician of control of test fees.

In addition, the Rand survey data are to be used to compare the propensity of fee-for-service physicians and salaried HMO physicians to order tests in treating ambulatory patients. Assuming that the incentives for the fee-for-service physician to substitute laboratory tests for his own time are the same in inpatient and ambulatory settings, a higher propensity to substitute tests by office-based physicians might indicate financial and time-saving gains from the performance of laboratory tests.

Rand researchers are also investigating the allegedly common practice of pricing hospital laboratory tests above costs to subsidize other departments. Possible influences under study in a sample of California hospitals include Medicare reimbursement on the basis of allowable cost, the formulae for determining allowable cost, and other details of reimbursement practices. The existence of pricing above cost would represent an economic subsidy generated by hospital laboratories, which could lead to excessive testing.

The physician's incentive to maximize hospital revenues is hypothesized to depend on whether his relationship with the hospital is one of salaried employee, fee-for-service contractor, or co-owner. Rand also plans to examine the role of physicians in hospital decision-making under different contractual arrangements and effects of these arrangements on the pricing of laboratory services. This study will help understand and control the growing use of laboratory tests. It will also predict the effects of any hospital cost containment approach. The results could also lead to reevaluations of physician and laboratory reimbursement methods under Medicare and Medicaid, particularly if the study reveals that current reimbursement formulae provide incentives for inefficient or unnecessary use of laboratory services.

**Durable Medical Equipment**

*Alternative Methods of Reimbursing for DME Acquired by Medicare Beneficiaries*

In September, 1976, ORDS competitively awarded a three-year contract to Exotech Research and Analysis, Inc. to conduct a durable medical equipment (DME) demonstration. The demonstration was designed to determine whether the experimental reimbursement methods were workable, desirable, and conducive to more economical provision of DME to Medicare beneficiaries. These demonstrations were conducted under the authority of Section 245 of Public Law 92-603, which called for the Secretary of DHHS to conduct reimbursement experiments aimed at eliminating unreasonable expenses from prolonged rentals of DME.

The demonstrations were originally intended to be implemented in 11 geographic areas, involving lump-sum payment for both new and used equipment based on the anticipated period of medical need. A lease-purchase conversion procedure was designed, whereby the purchase price is reduced proportionately to reflect the length of prior rental. In addition, the 20 percent Medicare Part B coinsurance is waived whenever the purchase price of used equipment is at least 25 percent less than the reasonable charge for new equipment. Researchers hypothesized that these incentives would stimulate equipment sales.

In October, 1977, however, Congress enacted Section 16 of Public Law 95-142, the Medicare-Medicaid Anti-Fraud and Abuse Act, which amended Section 1833 of the Social Security Act. This legislation mandated reimbursement procedures for DME which closely paralleled those being tested under the experiment. Under Section 16, the Secretary is authorized to determine, on the basis of medical and other evidence, whether the expected duration of the medical need for the equipment warrants a presumption that purchase of the equipment would be less costly or more practical than rental. If the Secretary determines such a presumption to exist, he or she must require that the equipment be purchased, on a lease-purchase basis or otherwise, unless it appears that such purchase would create an undue financial hardship on the beneficiary. Section 16 also waives the 20 percent coinsurance in the same manner as the experiment.

After the passage of this legislation, ORDS decided to redirect the experiment: one test site, the Washington Physicians Service (WPS) carrier area in the State of Washington, was selected to determine whether the now mandated reimbursement methodology stimulated equipment sales in lieu of prolonged rental. Unlike Section 16, however, beneficiaries residing in the WPS carrier area retained free choice of whether to purchase or rent their equipment. Exotech also gathered operating data from the other 10 sites in order to assess the impact of the Section 16 reimbursement methodology on administrative claims processing and reimbursement patterns over time. In addition, researchers undertook an investigation of Medicaid DME reimbursement and coverage provisions. Exotech's final report was submitted in January 1980.[1]

The results indicate that the number of items purchased increased, along with the proportion of reimbursement expenditures for purchase as compared to rentals. The Washington Physicians Service reports a reduction in the number of monthly purchase reimbursement processing operations. Prior to the experiment, there was an inventory of approximately 300 claims on which monthly installments were paid. This claims processing workload has been almost totally eliminated. The experiment does not appear to have been as successful in stimulating the purchase of used equipment. Less than one percent of the claims volume has been for the purchase of used equipment, and no rental-purchase conversions have occurred.

*DME Research*

Two DME research projects are currently in progress. The first project is a three-year grant to Williams College to study the industrial organization of the durable medical equipment industry. In addition, hospital purchasing practices are being studied under a contract with Dr. Theodore Tsukahara.

**Drug Industry**

In 1980, ORDS will undertake an intramural assessment of the response of the drug industry in terms of innovation and investment, given the current regulatory environment and government reimbursement practices.

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[1] *Health Care Financing Grants and Contracts Report,* "Reimbursement for Durable Medical Equipment," NTIS number to be assigned.

# Chapter V
# Integrated Data Systems

## Introduction

Section 19 of Public Law 95-142, the Medicare-Medicaid Anti-Fraud and Abuse Amendments, requires that the Secretary establish uniform reporting systems for hospitals, long-term care facilities, home health agencies, health maintenance organizations, and other institutional providers participating in the Medicare and Medicaid programs. The uniform reporting systems must provide information on costs and volume of services, rates, capital assets, discharge data, and billing data. Activities have focused on the development, testing, demonstration, evaluation, and implementation of such systems. These systems should generate comparable costs and related data for reimbursement, effective cost and policy analysis, assessment of alternative reimbursement mechanisms, health planning, and identification of abuse and error. This data network is intended to serve HCFA's current needs, as well as to form an administrative foundation for a national health insurance program. In addition, the comprehensive systems should alleviate the problem of incompatible and frequently redundant Federal, State, and local data systems.

## Uniform Reporting

### *Annual Hospital Report*

HCFA has developed a hospital reporting system to collect uniform cost and utilization data on a functional cost center basis. The Annual Hospital Report (AHR) is one in a series of uniform reporting systems to be established that incorporate common definitions and statistics for health care providers.

In 1922, the American Hospital Association developed and published a manual, *Chart of Accounts for Hospitals*, which hospitals use in reporting their data. It identified certain accounting principles and procedures and established a uniform chart of accounts. The manual has been periodically revised; the latest revision was published in 1976.

In 1975, Congress passed the National Health Planning and Resources Development Act, Public Law 93-641, Section 1533(d), which placed priority on "the adoption of uniform cost accounting, simplified reimbursement, and utilization reporting systems . . . " in the formulation of national health planning goals and in the development and operation of Federal, State, and area health planning and resources development programs. As part of the development of these systems, ORDS examined the experience of a number of States. The systems for the States of California, Washington, and Arizona appeared to be most successful, with the smoothest hospital adjustment.

In response to Public Law 93-641, ORDS developed a system which drew on the composite experience of these States, combining the best qualities of the existing uniform systems, incorporating the data identified by these States as necessary, and producing a first draft of a HCFA uniform reporting system. Because Public Law 93-641 granted only developmental authority for this system, ORDS relied on States' interest in adopting the newly-developed system to test its feasibility. ORDS contacted States with legislative authority to implement uniform systems. Arizona, California, New York, Oregon, and Washington expressed interest. A work group composed of HCFA staff and representatives from these five States revised HCFA's draft system to ensure that it would produce cost and utilization data.

In 1977, the Medicare-Medicaid Anti-Fraud and Abuse Amendments, Public Law 95-142, included authority to implement a uniform reporting system for hospitals and other institutional providers. What the Amendments did, in effect, was to mandate the implementation of the reporting system developed under Public Law 93-641. In response to this Congressional mandate, HCFA staff developed AHR. In doing so, the accounting portions of the previous system were removed, and the Medicare cost report and facilities data were included to meet the needs of health planners. This consolidation of reporting requirements was designed to reduce duplicative and overlapping reporting systems.

HCFA contracted with Morris Davis & Co. to determine the cost of implementing and operating the hospital cost reporting system. The methodology for this study was developed with input from the American Hospital Association and the Hospital Financial Management Association. The object was to identify the costs to the hospital industry of implementing AHR and the areas in which these costs would be incurred.[1]

Public comment was invited on the draft version of AHR through a Notice of Proposed Rulemaking (NPRM) published on January 23, 1979. The response from the public was significant. The majority of the comments focused on the perceived burden and cost of the system and the linkage of uniform reporting to Medicare and Medicaid reimbursement. As a result of these comments, significant changes were made to the system. However, the linkage of reimbursement and reporting has been retained. This decision was predicated on Congressional interest and prudent management concerns.

HCFA issued another NPRM in March, 1980 with concurrent publication of the revised AHR manual. Six months after publication of final regulations, the AHR will be adopted for use in the Medicare and Medicaid programs. Data received via the AHR will be made available to hospital managers, planning agencies, and other appropriate State and Federal agencies. Abstracted information will also be available at the local, State, and national levels to support informed policy analysis.

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[1] *Health Care Financing Research and Demonstration Report,* Report No. 16: "Estimates of the Costs to Implement SHUR."

*Uniform System for Home Health Agency Reporting*

In recent years, there has been general agreement that services should be provided to the chronically ill and disabled on an ambulatory basis, particularly in the home, rather than in institutions. Despite this consensus, Federal and State policies on home health services have only been slowly modified in the past 10 years. Moreover, the wide variation in costs among home health providers has impeded changes in policy and reimbursement. Home health agencies are not required to use the same method of apportionment or reporting costs. Requirements for home health agencies have not been changed since the inception of Medicare.

In response to Section 19 of Public Law 95-142, HCFA is developing a Uniform System for Home Health Agency Reporting (USHHAR) which will capture uniform cost and utilization data on a functional cost center basis from freestanding home health agencies participating in the Medicare and Medicaid programs. USHHAR data will be used for a variety of purposes. They will form the basis for reimbursement under Medicare and Medicaid, for applying 223 cost limits, and for developing alternative home health agency reimbursement policies. It will permit year-to-year and interagency comparisons of both utilization and cost of services provided to beneficiaries. Statistics will be produced to facilitate description and measurement of services provided. Both State and Federal agencies will use the data to perform health planning and resource allocation functions. It will be possible to monitor home health agency expenditures, utilization, and productivity, and to improve the capacity to detect abuse, error, waste and inefficiency.

HCFA initiated development of USHHAR in October, 1978. Uniform reporting and the Medicare cost report were combined to minimize burden on providers and to avoid two reporting systems. A draft system was circulated to national home health agency associations, industry representatives, and other concerned parties for comments. Most comments favored uniform reporting; however, there was some discussion concerning the level of detail required and the cost to implement the system. Draft regulations for implementing USHHAR will be published as a Notice of Proposed Rulemaking in 1980. HCFA is conducting a cost analysis to determine the implementation and incremental costs to the industry of implementing USHHAR. Work groups composed of industry representatives, HCFA staff, and others have been established to evaluate the cost analysis methodology, validate data and information needs, and assist with revisions to the system.

In 1980, formal meetings between HCFA and long-term care industry representatives will be held to discuss the development of a uniform reporting system for skilled nursing facilities and intermediate care facilities. The timetable for development of the system calls for a draft reporting system by the end of 1980. An impact analysis is scheduled for completion by January, 1981, with publication of a Notice of Proposed Rulemaking to follow.

**Uniform Billing and Discharge Data**

*Uniform Billing*

The multiplicity of bills that hospitals must complete to satisfy Blue Cross, other commercial insurers, and the Medicare and Medicaid programs is recognized as a burden by both public and private sectors. The hospital industry has for many years encouraged use of a single uniform bill acceptable to all payers.

The American Hospital Association has projected annual cost savings of $80 to $100 million from such a bill. Since the Federal government pays for more than 50 percent of inpatient hospital costs, sizable Federal savings would accrue if projected savings are realized.

In 1975, a working committee comprised of the American Hospital Association, the Health Financial Management Association, Blue Cross Association of America, and the Medicare and Medicaid programs developed a uniform billing form called the UB-16. Ohio, Connecticut, Florida, Arizona, and Nevada have started testing the UB-16. The State of New York is also testing a uniform bill called the UBF-1. These test sites will be evaluated to determine the benefits and utility of a uniform bill. The evaluation will focus on billing costs, costs of interfacing revenue coding, use of manpower in hospital billing, time frames, and cash flow, as well as the perceptions of those using the bill.

*Uniform Hospital Discharge Data Set*

Several Federal agencies and other health-related organizations individually collect data on hospital discharges. As a result, a hospital may provide the same or similar discharge information in various formats to different national, State, and local organizations. This duplication unnecessarily increases hospital costs and often results in discrepant information among users.

The need for a system to collect discharge information one time for all users was recognized in 1969, when DHHS and the Johns Hopkins University sponsored the Conference on Hospital Discharge Systems. This conference advanced the idea of collecting a minimum basic data set, using uniform definitions, on all hospital patient discharges. In 1970, DHHS awarded the Health Services Foundation of Blue Cross Association a grant to test and evaluate the concepts introduced at the Conference. This project, known as the Uniform Hospital Discharge Data Demonstration, was completed with the help of the U.S. National Committee on Vital and Health Statistics, which assisted in selecting and testing the data set.

In 1973, the Secretary of DHHS mandated the collection of uniform hospital discharge data for all DHHS-funded programs related to hospital level of care, except the Medicare and Medicaid programs. In addition to DHHS' requirements, other entities designed discharge abstracts to meet their administrative needs. A patchwork of systems resulted, with hospitals frequently completing as many as three discharge abstracts on a single patient.

In 1979, the Under Secretary of the Department gave HCFA the principal authority to create a uniform system for reporting discharge data, with the National Center for Health Statistics to provide technical assistance in establishing data standards and criteria and in monitoring the system. HCFA envisions a one-time, integrated collection of discharge data that will satisfy both Federal and non-Federal discharge data users. It is anticipated that the Uniform Hospital Discharge Data Set (UHDDS) will form the basis for this system, with the addition of HCFA-required patient, physician, and provider identifiers, selected billing data, and a PSRO element. Under this system, the provider would submit data to a Statewide (or, in a few cases, multi-State) data manager selected competitively by HCFA. The confidentiality of the data would be preserved. The data manager would control and maintain discharge data; nonprivileged data would be available to any agency or organization requesting the information, while patient and physician-specific data would be available only to those agencies with a legal authority to assess such information. Initially, UHDDS data will be collected only on Federally-funded hospital episodes.

**Model Integrated Data Systems Demonstrations**

In order to reduce the current inefficiencies in data collection and processing systems, ORDS is testing models of integrated data systems. Such systems are based on the data clearing house concept and will collect, process, and merge uniform discharge billing and other health-related data. The data will be provided to a variety of authorized health data users, such as fiscal agents, State and local health planning agencies, professional standards review organizations, rate regulators, and the Federal government. The data will be provided in the format and time frame required by each user.

In 1977, the State of New York was awarded a grant to develop a Statewide, centralized, and comprehensive health care data system, known as the Statewide Planning and Research Cooperative System (SPARCS). SPARCS serves as a central collector and disseminator of health care information. During the first two years of the grant, comprehensive, uniform data sets were identified for hospital financial and statistical activities, as well as for patient billing and medical characteristics. The vehicles required to report these data sets were designed and implemented for all hospitals in New York State. The New York system began the actual management of this data during calendar year 1979. HCFA recently extended support for this activity through fiscal year 1980.

# Chapter VI
# Long-Term Care

## Introduction

By the year 2035, one out of every 10 Americans will be 85 years of age or older.[1] The number of those over age 60 will more than double, from 33 to 71 million. This aging population will place increasing pressure on health care programs to provide the type of services required by the chronically ill and the physically or mentally disabled. While there is growing concern about this problem, there is also the recognition that too little is known about the most effective and economical way to organize and finance the wide range of long-term care services.

Because most of the illnesses which affect the elderly are chronic, the cost of providing services to meet long-term care needs is extremely high and growing faster than all other categories of health care spending. Between 1970 and 1978, nursing home expenditures increased from $4.7 to $15.8 billion—more than a three-fold increase.[2] Of the total $15.8 billion paid in 1978, over 47 percent of the funds came from private sources. Of the $4.7 billion in Federal funds, nearly 87 percent was paid by Medicaid.[3] Long-term care is consuming 40 percent of the Medicaid budget.

Despite consensus that alternatives to institutionalization represent the best means, both socially and economically, of providing long-term care, nursing home days of care have increased from four to six percent annually since 1970.[4] Besides the growing numbers of persons at risk, this rise in nursing home use may be attributable to a lack of alternative sources of care in communities and a lack of third party reimbursement for such alternatives. Other concerns which have been cited in expanding community-based, non-institutional care include cost, control of quality and abuses, the definition of benefits and eligibility, and the need for coordination of services. Before any changes can be implemented at the Federal level, research and demonstrations are needed to better understand these issues.

In addition to projects concerning these issues, research and demonstrations are being conducted to do the following: (1) ascertain the effects of revising benefits and eligibility criteria which currently place restrictions on admission to nursing homes and hospices and which may produce system inefficiencies, (2) encourage cost containment and quality of care, (3) assess the impact of new reimbursement strategies, (4) identify more effective long-term care quality assurance techniques, and (5) improve the statistics and baseline information upon which future assessment of needs, problem identification, and policy decisions will be based.

[1] "Some Prospects for the Future Elderly Population," Statistical Reports on Older Americans, Administration on Aging, HEW, January 1978, p.2

[2] "National Health Expenditures, 1978," Robert A. Gibson, *Health Care Financing Review*, Summer 1979, p.24, Table 3. This includes certified Medicare and/or Medicaid skilled nursing facilities, Medicaid certified intermediate care facilities, and all other homes providing some level of nursing care, even though they are not certified under either program.

[3] Ibid., p.13

[4] Ibid., p.7

## Community Care Systems

ORDS has undertaken a number of demonstration projects aimed at the development of community-based and in-home delivery systems for long-term care services. These systems could provide alternatives to nursing home care by making available to the elderly a variety of supportive living and rehabilitative services, ranging from adult day care centers to home companions. Many of the systems being explored are based on the channeling agency concept, which focuses on the design and operation of local community agencies with the capacity to assess patient needs, secure appropriate services, monitor their quality, and integrate the provision of medical, mental health, and social services. The major purpose of these projects is to develop a rational assessment of long-term care needs and to redirect and reallocate resources from an institutional orientation, where appropriate, to a greater reliance on community-based care for the chronically ill and disabled.

### *Multi-State Long-Term Care Planning*

A consortium of universities, led by the University of Chicago Center for the Study of Welfare Policy, received a one-year grant to develop a coordinated approach to the design and development of long-term care demonstration projects. The other universities involved include the University of Minnesota Center for Health Services Research, the University Health Policy Consortium (consisting of Brandeis, Boston University, and Massachusetts Institute of Technology), and the Health Policy Program of the University of California, San Francisco. The Consortium is comprised of a core group of planners, researchers, and State and local government representatives around the United States who are collaborating in the design and development of demonstration projects in five States: Massachusetts, Illinois, Rhode Island, Minnesota, and California. These demonstration projects will incorporate planned variations of financing, organization, delivery, and administration of long-term care services. The projects will be guided by a common policy, planning framework, set of objectives, research strategy with uniform data collection, and a consistent evaluation plan. The overall research objective of this coordinated approach to demonstration planning is to promote careful analysis of system-wide implications, to present alternative models for long-term care services, and to better understand the process through which States and localities can develop comprehensive long-term care service systems.

Seven specific objectives have been identified for the projects: (1) organize a full range of services that can be brought together on behalf of an individual patient and adapted to the specific service requirements of the client; (2) tailor services to individual situations in a way that is judged to be most cost-effective; (3) test and document the effects of alternative financing mechanisms for long-term care, including a capitation model; (4) implement a uniform cost accounting procedure for providers of care to measure and compare costs of alternative delivery systems and service combinations; (5) implement methods for assuring quality in long-term care services; (6) test varying methods for assessing the need for care and for matching service intervention with the assessed need; and, (7) finance and organize service delivery in a way that recognizes the role of informal support arrangements.

The University of Chicago is expected to complete a report on its plans for implementing the demonstrations in 1980.

*Monroe County Community Long-Term Care*

In December, 1977, the New York Department of Social Services implemented a project through the Monroe County Long Term Care Program, Inc. The project was designed to test the cost-effectiveness of a new long-term care model. Medicaid waivers which permit reimbursement for services that would not otherwise be available under the State's Medicaid plan were generated by HEW (now HHS) . The program patient-service model, entitled Assessment for Community Care Services (ACCESS), is a centralized unit responsible for all aspects of long-term care for the elderly in Monroe County. Program responsibilities include developing and coordinating community services, administering long-term care services, and collecting program data. ACCESS staff provide each patient with a comprehensive needs assessment, assistance in planning and obtaining community or institutional services, and ongoing monitoring of the appropriateness of the services. All long-term care services provided under Medicaid must be coordinated with the ACCESS unit in order to be reimbursed. Private pay patients may voluntarily use ACCESS services. The project is scheduled to end in mid-1980.

An evaluation of this demonstration project is being conducted by MACRO Systems.[5]

*Wisconsin Coordinated Care for the Elderly*

The Wisconsin Community Care Organization, sponsored by the Wisconsin Department of Health and Social Services, is a five-year project begun in October, 1974 to demonstrate that a substantial segment of the elderly and disabled population can be maintained in their own homes or in community settings through the provision of a packaged continuum of health and social services. Three community care organizations (CCOs) were established in the State to provide a single-entry system for all services. The CCOs perform assessments, provide case management, and arrange for services to Medicaid eligibles through a community-coordinated structure. The CCOs assume responsibility for providing health related services to eligible patients and subcontract with other community agencies for specific services. Medicaid waivers permit reimbursement for community services that would not otherwise have been available, such as advocacy, adult day care, chore services, companions, counseling, home-delivered meals, housing search, nutrition education, and transportation. The final evaluation report of this project will be submitted in mid-1980.

Preliminary data from the evaluation show that home care costs for long-term care patients under the demonstration are from 30 to 50 percent of comparable institutional costs. At the skilled nursing level, home care costs were estimated to be $20.01 per day compared to $45.00 per day for equivalent institutional care. At the health related level (equivalent to ICF care), the costs were $9.08 per day for home care and $27.00 for institutional care. At the domiciliary care level, the costs were $4.21 and $16.00 respectively. If the final results indicate that the program was successful, it will be incorporated into the Wisconsin Title XIX State Plan and implemented on a State-wide basis.

*Georgia Alternative Health Services*

In July, 1976, the Georgia Department of Medical Assistance embarked on a demonstration using two of the State's local health services systems to test alternatives to nursing home care for persons who would otherwise be placed in institutions. In addition to regular Medicaid-financed health services, the demonstration offers three alternative services: adult day rehabilitation, home-delivered services and alternative living services (e.g., personal care, adult foster care, boarding services, and congregate living arrangements). The project uses a "maximum units of service schedule" as a guide to determine whether or not the patient is suitable for, and can be cost-effectively maintained in, the alternative program. Standard contracts have been negotiated with a large number of alternative service providers. These contracts include (1) prior agreement on specific expenditures and cost allocations, (2) a line item budget which the provider cannot exceed, and (3) a system which allows a provider to retain unused funds for program expansion.

An evaluation of the project involving comparison of average cost data for new services compared with average nursing home costs in the experimental districts is being undertaken by Medicus Systems Corporation. Data for 1978 show that the average monthly cost per person receiving project services was $208, compared to the average cost of $591 for control group members who received nursing home services. The project's success in increasing independent functioning is being measured in terms of patient health, mobility, activity levels, and satisfaction. Georgia is considering Statewide implementation of the alternative health services program, pending the final outcome of the project.

[5] NTIS No. PB294033/AS: "Evaluation of the Monroe County (N.Y.) Long Term Care Program (Interim Report)."

*Washington Community-Based Care for the Functionally Disabled*

This project, sponsored by the Washington State Department of Social and Health Services (DSHS), was designed to determine whether an organization geared to meeting the long-term social and health needs of low-income, aged, and functionally disabled adults in a community-based setting would alter the use of and public expenditures for long-term care services and reduce nursing home utilization by Medicaid patients. In each of two demonstration sites, a community services unit (CSU) was established to serve functionally disabled adults. Data were also collected from a third site for comparison purposes. The CSUs screened and assessed designated high-risk patients prior to development of individual service plans and maintained liaison with hospitals and community service organizations to monitor the care plan. Waivers to permit Medicaid reimbursement for personal care and transportation for other than medical needs enabled expansion of the range of community services available to project participants. The demonstration period lasted from October, 1976 through July, 1978.

The final report indicates that the Medicaid nursing home population in demonstration sites was offset by a large increase in the number of patients receiving community services. There was also an increase in the total number of aged and disabled persons receiving service through DSHS, including persons diverted from nursing homes, as well as persons eligible for and in need of services who probably would not have been otherwise served. Because this resulted in an estimated five to 10 percent increase in total costs, the report suggests that strategies to control latent demand for community services would be required for cost containment to be effected. The project participants in the community did not differ in degree of physical impairment from nursing home patients, according to a functional status assessment. There did appear to be a difference in the mental dimension of functioning; however, it was not determined whether the change in mental acuity came before or after admission to a nursing home.

*Mt. Zion Long-Term Care for the Frail Elderly*

San Francisco's Mount Zion Hospital and Medical Center was awarded a grant to plan a comprehensive long-term health and social service delivery system for the frail elderly. A consortium of five community agencies serving elderly persons, with Mt. Zion Medical Center functioning as the central administrator, will carry out the demonstration design. Specific objectives include designing the services to be offered, developing a centralized intake process based on the use of a multi-functional assessment instrument, planning a central administrative system to deliver coordinated services, and devising a financial support plan. The expanded, comprehensive, service delivery model for the aged will include acute inpatient care and outpatient services, day health services, nutrition services, in-home care, transportation, respite care, and central intake for all demonstration participants. The project became operational in early 1980, with waivers permitting reimbursement on a prospective basis to certain providers for services not covered by Medicare, eliminating coinsurance and deductible requirements, and permitting payment for preventive care.

*Triage, Inc.*

The Triage model is based upon a single entry access point to the health service delivery system for elderly persons. In addition, the model includes the following features: patient assessment and individualized plans of care, coordination of all available health-related services, creation of new services in the demonstration area, monitoring of the plans of care, and evaluation of pertinent data in accordance with a research design so that patient outcomes and costs of services can be available for study by health care planners and reimbursement sources.

The Triage project developed its service delivery system around individual needs, rather than tailoring the care to existing reimbursable sources. Waivers make possible the provision to Medicare beneficiaries of a number of services not covered under Title XVIII, as well as expanded eligibility criteria. The project serves an eligible population of 19,526 people 65 years and older living in a seven-town area in central Connecticut.

Triage was initiated by the State of Connecticut in 1974. In 1975, it received Medicare waivers and funding from the National Center for Health Services Research for the research component. The demonstration has a quasi-experimental design: control participants live in a community separate from the seven-town Triage area and receive no services from the project.

The findings from the first three years of the project will be available in 1980. Preliminary findings indicate that the State Medicaid program's percentage distribution of service costs indicated a clear institutional bias compared to the Triage population. Institutional expenses comprised 89.4 percent of the State's FY 1977 costs, while Triage's were only 52.5 percent. Institutional days saved translated into a savings of $1.7 million net dollars.

*Minnesota Health Seniors Center*

Hospitals and nursing homes have functioned as the traditional elements of health care service delivery for the rural elderly. Limited home care may be available through overextended and under-budgeted county public health nursing staffs. Consequently, many of the older residents of rural communities have little access to the health care and social services that are generally more abundant in cities. This one-year planning project, under the direction of the Health Central Institute, was designed to address some of these problems by developing a rural, community-based health system in a tri-county area of Minnesota. St. Mary's Hospital and Nursing Home and the Healthy Seniors Center, Winstead, Minnesota, were the focal points for the organization and delivery of a variety of health and social services to the elderly. The project identified the existing health-related programs and the service needs of the elderly population in the service area. Four variations of a model to

delivery coordinated health and social services were developed. The project advisory committee and project staff selected the most appropriate coordinated delivery system model to be tested and evaluated. If adopted by the community, the resulting comprehensive service model would provide health care and promote self-sufficiency through accessible, affordable, and cost effective services.

*New York Long-Term Home Health Care*

The New York State Department of Social Services received Medicaid waivers on September 30, 1978, to assist on a three-year demonstration basis in the gradual implementation of the State's home health care program, Nursing Home Without Walls. These waivers allow the demonstration to take place on less than a Statewide basis and permit the addition of services currently not covered under the State's public assistance program. Under State legislation passed in 1977 and effective April 1, 1978, home care is being used as a voluntary alternative to institutionalization for Medicaid patients who meet the medical criteria for skilled nursing facilities (SNFs) or intermediate care facilities (ICFs). A maximum expenditure is set at 75 percent of the going rate in a locale for SNF or ICF level of care for which the client is certified.

In addition to measuring the costs of such care, the New York State program has been designed to demonstrate the effectiveness of case management, coordination, and care planning on behalf of the individual. Providers may be public or nonprofit hospitals, nursing homes, or home health agencies that meet the State's criteria. The demonstration is being carried out in nine sites. New York plans to implement the progam on a Statewide basis pending the results of the demonstration. An evaluation of this program will be conducted through a competitive contract awarded in September, 1979 to Abt Associates.

*Deinstitutionalization for the Chronically Mentally Ill*

The Department of Housing and Urban Development (HUD) and DHHS are jointly funding a project aimed at deinstitutionalizing the mentally ill. Under Section 202 of the Housing Act of 1959, as amended by Public Law 86-372, HUD is providing direct loans to private, nonprofit contractors in 34 States for the construction and/or rehabilitation of community-based residential housing for the chronically mentally ill. Through a cooperative arrangement with HUD, HHS is assuring that the recipients of care in these demonstrations will receive an appropriate service package. HHS is also funding an evaluation component and providing a reimbursement mechanism for services such as case management, supervision, life skills training, and transportation through the use of Section 1115 waivers. HCFA will reimburse over a one to three-year period for social and health services provided to beneficiaries who are residents of the group homes or independent living complexes.

Eight States initially indicated their intent to submit grant applications to HCFA to permit Medicaid reimbursement for services. In future years, the States are expected to meet those costs by funds from other State, local, and community sources. The time schedule for submission of waiver applications will depend upon the target dates for service provisions that are set by each State.

**Reimbursement and Coverage Issues**

Medicare and Medicaid programs in some States reimburse for long-term care on a retrospective cost basis. Some of the same costly incentives which result from cost reimbursement to hospitals occur among skilled nursing facilities (SNFs) and other long-term care providers who are paid under this system. Moreover, many of the current Title XVIII and XIX coverage provisions are believed to encourage inappropriate use of acute levels of care, and exacerbate the uneven distribution of long-term care resources. To address these and related issues, a number of demonstrations and studies are being conducted. Among the topics being explored are the feasibility and effectiveness of prospective reimbursement for nursing homes, the applicability of a capitated reimbursement model to a community-based long-term care system, and the use of acute care beds for SNF-level care. ORDS has placed a high priority on implementing the Secretarial initiative to develop the hospice approach in caring for terminally ill patients.

*Hospice Demonstrations*

The growth of hospice care in the United States is a relatively recent phenomenon aimed at helping terminally ill patients live with maximum comfort and minimal disruption to routine activity. Many hospice patients are able to remain at home with their families while continuing to receive care. Hospices use an inter-multidisciplinary approach to deliver social, psychological, medical, and spiritual services, employing a broad spectrum of professional and voluntary care givers.

The Medicare and Medicaid programs do not currently recognize hospices as a separate provider category, although some hospice organizations are participating in Federal programs within existing provider classifications (e.g., hospital, skilled nursing facility, and home health agency). Some hospice services, such as drugs used in the home and bereavement visits to the patient's family, are not reimbursable under Medicare. State Medicaid programs have differing coverage of hospital, nursing home, and home health services, and many States do not cover certain services integral to hospice care.

HCFA is implementing a hospice demonstration project under agreements which will permit the waiver of certain program requirements for coverage of hospice services provided to Medicare and Medicaid beneficiaries.

The demonstration will involve a three to six-month developmental phase, a 24-month experimental phase during which hospice services will be reimbursed, and a six-month, wind-down period. It is likely to provide a basis for considering more flexible approaches to Medicare and Medicaid reimbursement of hospice services.

Twenty-six sites have been selected for participation in the HCFA hospice demonstration program. The decision to choose these 26 was based on the need for evaluation data that would reflect urban and rural differences and variations in hospice provider types (e.g., hospitals, home health agencies, medical centers, and freestanding facilities). There is at least one hospice demonstration site in each of the 10 HHS regions. The operational phase of the demonstration will begin in 1980.

An independent evaluation of the hospice demonstration will be jointly funded by HCFA and the Robert Wood Johnson Foundation. The evaluation will include: (1) identification of the types of hospice services provided to terminally ill Medicare and Medicaid beneficiaries and a determination of the cost of providing those services, (2) identification of the types of services provided to terminally ill patients by conventional modes of care and a determination of the cost of providing those services, (3) comparison and analysis of the costs of services provided in-home and in inpatient settings by the demonstration and conventional modes, and (4) assessment of the adequacy of the care received.

### Prospective Reimbursement for Nursing Homes

As the initial stage in developing a prospective reimbursement system for nursing home facilities, HCFA awarded three contracts in April, 1977. Abt Associates conducted cost studies of routine services and ancillary services, Battelle Memorial Institute examined rates of return on equity capital and the estimation of risk, and the Urban Institute conducted selected case studies of State Medicaid prospective reimbursement systems. An experimental phase will be undertaken when the results of these studies are evaluated and a formula rate-setting system devised.

### Nursing Home Prospective Reimbursement System Development

The main focus of the Abt Associates contract was the development of a prospective reimbursement system for long-term care institutions. Development of this system centered upon an econometric analysis of the nursing home industry and an examination of existing prospective reimbursement systems for long-term care institutions. Two sets of data were used in the study: National Center for Health Statistics' 1973-1974 National Nursing Home Survey and data from New York, Massachusetts, and Indiana. A final report, submitted in July, 1979, recommended a prospective reimbursement model based on a formula-based budget review by exception system.

### Risk and Rates of Return

The principal objectives in the Battelle contract were to study the risk faced by nursing home owners and the rates of return earned in the industry. The study involved three main tasks: estimation of rates of return and the analysis of the effects of reimbursement on these rates, study of the profitability and vertical-horizontal integration of nursing homes, and the estimation of risk.

In its findings, Battelle questioned the effectiveness of State attempts to "fine-tune" current cost-related reimbursement systems. It also determined that payments for capital services under most reimbursement systems do not reflect the real costs of capital, thus contributing to the inefficient use of capital resources. Battelle researchers concluded that (1) reimbursement for capital services requires no special premium on the rate of return for investment risk in the nursing home industry, and (2) profitability does not appear to be linked with either vertical or horizontal integration of nursing homes.

### Selected State Prospective Reimbursement Systems

The main task of the Urban Institute contract was to study in a descriptive way States' experience with the prospective reimbursement of nursing homes in California, Colorado, Connecticut, Minnesota, New York, Illinois, and Louisiana. These case studies investigate the formal, informal, and perceived goals of each prospective reimbursement system, describe the reimbursement methodology in detail, and identify the formal means by which the regulatory agency gauges the impact of the reimbursement system on the industry. In addition, each State's information system is described. The output from these studies consists of detailed reports for each State reimbursement system and one report comparing the different systems. These reports are due in 1980.

### *On Lok Community Care for Dependent Adults*

HCFA has granted waivers to the On Lok Community Care Organization for Dependent Adults to provide for the delivery of a comprehensive health and social service package to an elderly population in the San Francisco Chinatown area and to reimburse for these services on a capitation basis. This project will demonstrate the feasibility of a capitation system of reimbursement for both health and social services for the elderly provided by an HMO-type organization.

The objectives of this project are to develop and operate a centrally-funded and administered community care system; to measure the impact of capitated, decategorized funding on utilization, quality, and cost of services for dependent adults; to contrast the management efficiencies of the model with those of other systems; and to develop actuarially sound budgeting methods for medical and social needs.

It is hypothesized that the community care project will change health service patterns: days of institutionalization, both skilled and acute, will be decreased, while professional, medical, therapeutic, and social services will be increased. In addition, the quality of long-term care will be improved, and the participants will function more independently. At the same time, long-term care health costs are expected to be lower than the costs of traditional long-term care and the costs in a brokerage model of integrated services. An independent evaluation of the project is planned.

## Utah Cost Improvement Program

In 1973, HHS (then HEW) entered into a contract with the Utah Department of Social Services to demonstrate the usefulness of allowing rural, low-occupancy acute care hospitals to deliver long-term care usually provided by skilled nursing facilities (SNFs). The project was designed to test a reimbursement formula directed at reducing each hospital's acute care costs while alleviating two problems prevalent in rural areas: low occupancy rates in community hospitals and the shortage of long-term care beds. The efficient use of a hospital's existing resources was emphasized in the attempt to solve these problems. Important side benefits which have resulted include better continuity of care and conservation of capital resources, because few, if any, new free-standing, long-term care facilities have been required.

Twenty-four rural hospitals are participating in the Utah Cost Improvement Project (UCIP). In general, these hospitals have fewer than 100 acute beds and experience a chronically low occupancy rate of less than 60 percent. The Utah Title XIX program is participating in UCIP for both SNF and Intermediate Care Facility (ICF) levels of care.

A three-year evaluation of the UCIP was completed in the spring of 1978 by the University of Colorado.[6] The evaluation focused on the financial, administrative, and utilization aspects of the project and the capacity of the participating hospitals to provide long-term care.

In the financial area, the incremental, or add-on, cost per day of providing long-term care in participating hospitals equaled half that of providing care in Medicare SNFs in Utah. The few long-term care patients added to the hospital census did not significantly improve the financial position of most hospitals. Nevertheless, most hospital administrators and nurses demonstrated positive attitudes toward the project. Results also suggested that education and orientation programs for community physicians should receive more emphasis.

In the area of utilization, a shift was found in Medicare utilization by residents of rural Utah from urban SNFs to the UCIP hospitals. Medicare SNF use by residents of rural Utah increased by 10,000 patient days or 25 percent, possibly indicating a previously unmet need. By the end of the project, 10 percent of inpatient days in hospitals that had had no long-term care experience before the project were for long-term patients. Patterns of acute care were not altered by the project.

The analysis of the capacity of the UCIP hospitals to provide long-term care showed that nursing care, as measured by nursing time spent per patient, was greater in the UCIP hospitals than in a comparison group of Utah SNFs. On the other hand, the UCIP hospitals did not satisfy long-term care regulations in the areas of rehabilitative nursing, rehabilitative services, patient activities, and social services as consistently as did Utah SNFs. The evaluation concluded that the approach to providing long-term care in rural areas demonstrated in the UCIP is viable and efficient. The evaluation of the UCIP, along with the other swing-bed projects described below, supported inclusion of a swing-bed provision in the 1979 Talmadge proposal for Medicare and Medicaid reform (S. 505). Utah has modified its Medicaid reimbursement system to nursing homes to incorporate the successful administrative, computerization, and cost containment aspects of the UCIP into its ongoing program.

## Other Swing Bed Projects

In July 1975, the UCIP demonstration was expanded to sites in three other States—Texas, Iowa, and South Dakota. Contracts were signed with the Texas Hospital Association and Blue Cross of Western Iowa—South Dakota to administer the Reducing Acute Care Costs (RACC) swing-bed experiments patterned after the Utah model and based on initial UCIP data.

Approximately 40 hospitals are participating in Texas and 20 in Western Iowa-South Dakota. All of the hospitals satisfy the following conditions: location in a rural area where long-term care is inaccessible or unavailable, low acute patient occupancy rates averaging less than 80 percent, fewer than 100 acute beds, staff/patient ratio not exceeding two standard deviations of the average of all hospitals of the same bed size in the State, and total employed full-time equivalents (FTEs) not exceeding the FTE average for the hospital for the preceding five years by more tha 20 percent.

Medicare reimbursement for SNF routine services is set at a fixed rate per day, negotiated between HCFA and the individual contractor. The negotiated Medicare rate does not exceed the Medicaid rate for the highest level of long-term recognized by each States Title XIX program. All participating hospitals are eligible to receive financial incentives from the Medicare program, based on the degree of their efficiency in providing long-term care. The Medicaid program in South Dakota reimburses for SNF, intermediate, and custodial levels of care. The Iowa Medicaid program, however, is not participating in RACC.

In November, 1975, Blue Cross of Iowa (BCI) submitted an unsolicited proposal to conduct a swing-bed experiment with hospitals in its service area, eastern and central Iowa. The 24 hospitals participating in this project began admitting long-term patients in April, 1977.

[6] NTIS No. PB292723/AS (Final Summary) and PB292674/AS (Technical Report): "An Evaluation of an Experiment to Provide Long Term Care in Rural Hospitals in Utah."

A distinctive feature of this experiment is that the hospitals are not eligible for a incentive payment, as permitted in Utah, Texas, and Western Iowa-South Dakota. Therefore, a direct comparison of Western Iowa-South Dakota and BCI results should permit a determination of whether an incentive is necessary to obtain the cooperation of small, rural hospitals in providing SNF level of care services in their institutions, or whether it is sufficient to permit hospitals to use swing-beds to provide long-term care.

The evaluation of the RACC experiments is being performed by the University of Colorado under a three-year contract. The final report is due in 1980 and will follow the general scheme of the UCIP evaluation. In the RACC evaluation, however, more emphasis is being placed on an examination of the quality of skilled care in participating hospitals.

*Waiver of Hospitalization Requirements for Medicare SNF Coverage*

The SNF benefit was included in Medicare Part A to provide a lower-cost alternative to extended hospitalization. The requirements of a three-day hospitalizaton prior to admission to an SNF was imposed by the statute to limit SNF benefits to persons who need continuing care after hospital treatment. The requirement was also intended to ensure that medical conditions and needs of Medicare patients admitted to SNFs have been given adequate medical appraisal prior to admission.

It is hypothesized, however, that the three day prior hospitalization requirement has resulted in unnecessary hospital stays for Medicare beneficiaries who could use less costly SNF care without prior hospitalization. The Senate Finance Committee recommended that the Secretary of HHS conduct experiments to determine the effects of eliminating or reducing the requirement. Consequently, HCFA entered into contracts with Blue Cross of Oregon and Blue Cross of Massachusetts to conduct demonstrations to determine whether a waiver of the three-day requirement would result in lower overall costs for both the patient and the Medicare program, and whether this requirement imposes a burden on Medicare patients who may need SNF care but not hospital care. The project will also analyze effects on hospital and SNF utilization. The experimental phase of the projects, which began in the spring of 1978, will continue through 1980. Final reports from the demonstration contractors will be available in 1981. A request for proposals was issued in the summer of 1979 to evaluate these projects, and a contract was awarded to Abt Associates.

*Long-Term Care Reimbursement and Regulations*

Recent characterization of nursing homes as failures of public policy highlight areas of continuing concern in the long-term care delivery system. These concerns include rising costs, inadequacies of existing quality assurance procedures, and growing demands on the system by increasing numbers of elderly persons. The current long-term care system has been criticized as being inefficiently concerned about promoting the quality of life, with few, if any, financial incentives for providers to alter current conditions. The design of a better delivery system for the nation's elderly population required the development of procedures to measure patient need for services, to monitor the quality of care provided so that these needs are met, and to ensure that the cost is commensurate with the level of care provided.

The University of Colorado Medical Center is using a multi-year research grant to study the relationships among patient mix, quality of care, and cost of care in nursing homes and to assess practical implications for reimbursement and regulation policies. The project, which began in December, 1978, focuses on facilities in Minnesota and Colorado. Hypotheses being addressed include the following: quality of care can vary across long-term care institutions and accounts for a substantial portion of cost differences; process and outcome measures of the quality of care can be constructed to permit a study of the relationship between such measures; quality can vary across case-mix categories; a substantial portion of cross-institution cost variations can be due to case-mix and quality; and the results of a study to assess the relationships between process and outcome measures of quality can be used to develop information of direct relevance to long-term care quality assurance and the assessment of various structural standards. Several of the approaches used to evaluate long-term care costs and quality in the UCIP and RACC projects are being considered in this study.

**Quality of Care and Data Development**

ORDS conducts a variety of projects aimed at ensuring the quality and appropriateness of care provided to Medicare and Medicaid beneficiaries in long-term care facilities and community-based systems, as well as providing a more empirical basis for research in long-term care. These projects focus on improvement of long-term care data bases and survey methods and attempt to reveal underlying relationships between reimbursement, quality and levels of care.

*Wisconsin Nursing Home Quality Assurance Project*

Under a three-year grant, the Wisconsin Department of Health and Social Services, Division of Health, is conducting a demonstration project to improve the quality of care review in nursing homes by using streamlined techniques. Nursing home surveys are conducted annually to measure compliance with State and Federal conditions of participation for homes accommodating Medicaid recipients.

The project uses an experimental survey, developed initially by the Wisconsin Medicaid Management Study Team. The survey identifies deficiencies as well as underlying problems. Both facilities and patients are randomly assigned to study groups. One group is surveyed using the experimental procedures, while the other is surveyed in the traditional fashion, which consists of checking approximately 1,500 items relating to conformity/noncomformity of the facility to legislation and annually reviewing all facility residents.

The experimental system of surveying facilities and patients is expected to result in a more efficient, economical, and effective facility, medical, and independent professional review, plus an improvement in the quality of care. This method makes it possible for the surveyor to look at the nursing home care delivery system using key quality criteria and to focus time resources on problem areas. When deficiencies are observed, consultation can be provided and resurveying can be conducted as often as necessary during the year, rather than using the former method of waiting for the next annual survey. This project will end in June, 1981.

This experimental project should provide information for policy decisions and legislation pertaining to changes needed in the current survey and certification process.

*Estimation of Long-Term Care Need*

Estimations of need for long-term care serve as inputs for policy-making regarding allocations of health care resources. However, existing estimations are fragmented and incomplete, since few surveys have documented disability and related measures for the entire long-term care population. Rather, these surveys have dealt with working-age populations, institutional populations, or other breakdowns. In order to refine estimates of long-term care needs at the national level, ORDS entered into an interagency agreement with the Bureau of the Census for a one-year project ending September, 1979. The activities under this agreement addressed issues related to the development of criteria for home-based and institution-based need. Previous research by the Bureau of the Census indicated considerable variation in the living arrangements of the elderly in 1970. The most recent project attempted to identify the factors related to various living arrangements, particularly individual and environmental characteristics that give rise to such living arrangements, plus factors defining need for care and related services.

Specific research goals included refining a model of need for long-term care, analyzing data suggested by the model, and recommending a methodology for validating the model. The validated model would then serve as input for models of demand and utilization of health care and related services for the elderly. The study utilized the age-, sex-, and race-specific rates for living arrangements derived from the 1970 census, with available data on health care facilities, health manpower availability, demographic and socioeconomic characteristics, transportation, and nursing home financing, which are believed to affect the need, demand, and use of long-term care. The outcome of this undertaking is expected to enhance the determination of State and national level needs for long-term care and to provide input for estimations of the utilization and cost of such services.

*Analysis of Institutionalized Persons Survey*

The Bureau of the Census conducted the Survey of Institutionalized Persons (SIP) in early 1976 under the sponsorship of HHS. This survey gathered data from over 800 institutions selected from the 1973 Master Facility Inventory file, a census of all residential long-term care facilities. The sample of institutions was stratified by size (under 100 beds, 100-349 beds, 350 and more beds), and type of facility (nursing homes, facilities for the mentally retarded, psychiatric institutions, children's facilities, facilities for the physically handicapped, and other care facilities). In many of the sampled institutions the administrator, staff members, and a sample of residents were interviewed. Information was also abstracted from the facilities' administrative records. Family members of selected residents were interviewed as well. The survey gathered data on characteristics of the patients and the facilities, admission and discharge policies, cost of care and source of payment, and types of services provided.

ORDS is currently conducting intramural studies of the data on nursing home patients gathered in this survey. One study will analyze the relationship among the different amounts of payment for nursing home care, sources of support for this care, patient characteristics, and features of nursing home facilities. The results of this effort will be available in 1980.

Another study focuses on the mentally ill in nursing homes and will attempt to assess the extent to which nursing homes are meeting the needs of this patient group. Data on services offered to psychiatric patients, ties to their families and the communities, patient activity levels, and chances for discharge into the community within the following year will be analyzed. It is widely believed that a significant number of nursing home residents have psychiatric problems which remain untreated. Many of these elderly patients formerly lived in mental hospitals before the deinstitutionalization movement began and before Medicaid covered nursing home care. Few research projects have systematically analyzed this sub-population of nursing home patients. This study will help to determine whether the placement and retention of the mentally ill in these facilities is appropriate, or whether it appears that other community-based alternatives could better meet their needs. The study will be completed by late 1980.

*National Nursing Home Survey*

In order to obtain State-level estimates of nursing home expenses, residents, discharges, and staff, HCFA arranged with the National Center for Health Statistics (NCHS) to augment the 1977 National Nursing Home Survey (NNHS). Under this interagency agreement, NCHS collected data on an additional 202 nursing homes in the major Medicaid utilization States: California, Illinois, Massachusetts, New York, and Texas. Oversampling in these States resulted in the availability of data for comparisons among the States as well as with national "benchmark" figures for more than 350 items of information collected in the 1977 NNHS. Weights, variances, and tables on the nursing homes will be prepared.

Comparisons of Medicaid program nursing home data to estimates for all nursing homes should prove valuable in terms of policy questions on population served, administration, and cost of care. These data should also permit ORDS to conduct partial analyses of relationships between State Medicaid eligibility, reimbursement policies, and the utilization of nursing homes. NCHS is now in the final phase of collecting and computerizing data from the five States. ORDS expects results of the data analyses to be available in late 1980.

*Social Service Information NETWORK*

The Michigan Department of Social Services conducted a demonstration project in greater metropolitan Detroit and the Upper Peninsula area to test the usefulness of a computerized social service information and referral system. Known as NETWORK, the system has the ability to update, retrieve, and displace information on a variety of services through terminals located at different information and referral sites. The study was designed to demonstrate that NETWORK can effectively provide the most current information to planners and to assess the impact of the system on those processes. ORDS became involved in NETWORK to assist in the development of the health-related components of the system, including health planning, hospital discharge and long-term care. The demonstration was completed in February, 1979. An evaluation report on the project has been prepared by Kirschner and Associates.

# Chapter VII
# Physician Reimbursement

## Introduction

One of the most important but difficult issues that HCFA programs must address is the payment of physicians. Understanding the effect of physician reimbursement policies and testing new approaches is critical for at least two reasons. First, while physician spending is only one-fifth of total health expenditures, the physician is the central decision-maker with respect to the use of an estimated 70 percent of all health services. The physician prescribes treatments and diagnostic tests, admits patients to the hospital, schedules and performs surgery, decides when a hospitalized patient can be discharged, and recommends treatment regimens after hospitalization. Second, the current training pipeline will produce a 35 percent per capita increase in the number of physicians between 1975 and 1980, with potentially major consequences for future health care expenditures and physician distribution. Thus, the ways in which physicians are paid has a growing impact on health care expenditures and utilization patterns.

It is generally agreed that the current fee-for-service reimbursement system provides little incentive to physicians to control costs. Approximately 75 percent of the 330,000 patient care physicians in the U.S. practice fee-for-service medicine.[1] A recent study by the President's Council on Wage and Price Stability concluded " . . . that many of the forces operating in the recent past continue to exist: lack of competitive pressures to restrain fee increases, extensive health insurance coverage, and insurance reimbursement practices which allow the physician to determine the fee and level of insurer reimbursement."[2]

Politicians, government officials, and researchers are aware that the current fiscal situation in health care is unsatisfactory. Any further expansion in benefits or coverage needs to be accompanied by effective means of controlling costs, including fees paid to physicians as well as to other components of the health care system under the direct or indirect influence of physicians.

Attesting to the need to address physicians in efforts to control costs are data which indicate that since the April, 1974 expiration of wage-price controls, the physician services component of the Consumer Price Index has risen 11 percent annually, compared to an increase of 7.3 percent in all consumer prices. In 1978, the Federal government contributed over $7 billion to the nation's total physician bill of $35.2 billion.[3]

Since 1975, ORDS has supported a wide variety of grants and contracts, as well as intramural research projects, to examine physician reimbursement issues. Unlike hospitals, information on the relationship between how we pay for health care and how physicians respond to those payment methodologies is sparse. Consequently, a major goal of ORDS' physician reimbursement research program is to develop data bases which permit analysis of the effects of changes in national policies and market conditions on physician pricing, service patterns, and willingness to participate in Federal programs. In addition, ORDS is assembling data sets on trends in physician pricing, quantity of service, intensity of services, and third party payments. Analyses are focusing on price and service patterns, physician practices and administrative costs, productivity, caseload variance, physicians' participation in public and private programs, and identification of ways to increase their participation. Finding ways to improve physician accessibility for HCFA beneficiaries is also of particular concern. Declining Medicare assignment rates and low fees paid by Medicaid in some States are two factors which are thought to affect access. Implementation of projects which address these hypotheses is in progress. The collective findings of these activities will help to guide the design of future demonstrations while assisting decision-makers in determining health care policy.

## A Study of Administrative Costs in Physicians' Offices

In June, 1977, Abt Associates completed a study which involved a survey of 2,000 solo or small/medium group practice physicians in the five largest specialties. (i.e., general practice, internal medicine, general surgery, pediatrics, and obstetrics/gynecology).[4] The study examined: (a) the components of medical practice expenses; (b) the details of administrative costs, including the costs of scheduling, billing, forms completion, accounting and collection time, labor, equipment and services; (c) fees for selected procedures and reimbursements from different payers; and (d) Medicaid participation.

The study found that 70 percent of physicians surveyed participate in Medicaid. Physician willingness to treat Medicaid patients was found to be strongly related to Medicaid reimbursement levels. A 10 percent increase in Medicaid reimbursement levels was found to increase the percentage of a physician's practice awarded to Medicaid patients by seven percent. For Medicaid participating physicians, red tape

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[1] Gabel, J. and M. Redisch, "Alternative Physician Payment Methods: Incentives, Efficiency, and National Health Insurance," *Milbank Memorial Fund Quarterly: Health and Society,* Winter 1979, pp. 38-59.

[2] Dyckman, Z.Y., *A Study of Physicians' Fees,* Council on Wage and Price Stability, Executive Office of the President, March 1978, p. vi.

[3] Gibson, R.M. "National Health Expenditures, 1978," *Health Care Financing Review,* Volume 1, No. 1, Summer 1979, pp. 1-36.

[4] NTIS No. PB271066/AS. See also Sloan, F.A., J. Cromwell, and J.B. Mitchell, *Private Physicians and Public Programs* (Lexington, Mass: Lexington Books, 1978).

factors such as claims payment times, time to fill out and return claims forms, and return of claims forms for additional information were found to be statistically significant but very small deterrents to participation. Medicaid reimbursements were found to take 30 days longer on the average, than Medicare or private insurance, both of which have equal delays. For those physicians not participating in Medicaid, reimbursement levels, red tape factors, and philosophical opposition to government in medicine were the primary reasons for not treating Medicaid patients. Eighty percent of those who do not participate in Medicaid reported that, in some cases, they reduce their charges for indigent patients.

The study also investigated the issue of physician fee reductions and found this phenomenon to be nearly non-existent. It was found that less than three percent of physicians' total gross income was foregone through reduced fees, independent of participation in public programs and professional courtesy. However, the study also found that price discrimination continues in a different form; instead of reducing prices before seeing the patient, the study found physicians willing to incur more bad debts, amounting to 8.4 percent of gross income.

The study also reported that physicians spend an estimated five hours per week on administrative activities (filling out insurance forms, billing patients, personnel matters, financial matters, hospital administration, and other activities). The total cost of performing all administrative tasks (including the value of physician time) was found to average $2.45 per visit. With gross revenue of $14.00 per visit, total administrative costs amounted to 15 percent of revenues. Physician administrative time was valued at $.92 per visit, or 6.3 percent of per visit revenues.

While most analyses of physician costs variation have concentrated on the issue of economies of scale, this study attempted to separate the technical reasons for scale economies from the perverse incentives thought to occur with various expense/revenue sharing arrangements. The development of an analytic taxomony based on size and sharing arrangements was necessary, because all groups are not homogeneous; in fact, some groups look very much like solo practitioners (e.g., groups sharing only expenses resemble solo practitioners practicing in the same building). Of the 37 percent of sample physicians in group practices, 56 percent shared net income equally, 16 percent shared net income unequally based on productivity, seven percent shared net income unequally based more on past performance and initial investment, and 21 percent shared only expenses. The study found the most efficient scale for physician practice of nine or fewer physicians to be 6 physicians. Moreover, the study found evidence that economies of scale are partially offset by sharing arrangements which discourage cost control and increase effort in larger size physician practices. The study also showed that the perverse incentives are offset to some extent by collective decision-making, either through meetings with partners or by delegation to an office manager. Group practices in which there were no constraints on physicians' purchases of inputs had administrative costs 20 percent higher than the average for all groups, and those without office managers were 12 percent costlier.

The study also compared 1975 fees for Medicare, Medicaid, the "best" Blue Shield Plan, and the physicians' usual fee for each of seven specific medical procedures. For five of the seven procedures, Medicare fees averaged about 75 to 80 percent of physicians' usual charges. Medicaid fees averaged 75 to 80 percent of Medicare and Blue Shield fees and about 60 percent of physician's usual fees.

**Medicare Economic Index**

Section 224 of the 1972 amendments to the Social Security Act imposed limitations on allowable increases in Medicare prevailing charges for physicians' services based upon an economic index. Since fiscal year 1976, an economic index has been applied to the Medicare and Medicaid programs to limit prevailing charge escalations to increases in the cost of maintaining an office practice and increases in general earnings in the labor force. The purpose of Section 224 was to limit increases in fees recognized by Medicare and Medicaid to a level based on inflation in the general economy and improved productivity.

In enacting the legislation, Congress anticipated that available data would permit calculation of separate economic indices for each geographic area or physician specialty; yet lack of appropriate data led to the establishment of a national index. The economic index, however, remains the major physician cost control authority and represents the only enduring national effort to restrain the escalation in prices for physician services in the Medicare and Medicaid programs. The general effect of the economic index has been to reduce the aggregate absolute increases in Medicare-allowed reimbursements by one and a half to two percent annually. However, the economic index, as currently applied, locks into place any prevailing charge imbalances between urban and rural areas and among physician specialties that existed in the base year of 1973. Little is known about the effects of the economic index by types of service, physician specialty, or geographic areas. But the index does not limit actual physician charges, and they have increased at faster rates than prevailing charges that are constrained by the index. Hence, application of current statutory authority is transforming prevailing charge screens into a series of specialty-specific and local fee schedules.

*Physician Practice Costs Survey*

To meet the need for reliable data on physicians' practice costs and incomes to refine the economic index, ORDS has initiated a national survey in 15 office-based and three hospital-based specialties. The survey is being conducted for three consecutive years by the National Opinion Research Center (NORC) under contract with HCFA. The 1976 survey collected data on 4,025 physicians; over 5,000 physicians were surveyed in 1977 and 1978. NORC selects the sample of physicians (stratified by specialty) and conducts the half-hour survey by phone with the physician or the appropriate member of his or her staff. The content of the questionnaire being used in this survey includes practice characteristics (e.g., practice size, incorporation status), hours worked by treatment setting

(e.g., office, hospital), number of visits by treatment setting, practice expenses by item, net income of the physician, gross income of the practice, fees for selected procedures by type of insurer, and patient characteristics (e.g., insurance, race).

While the goal of this data collection is to provide a means for determining whether and how to modify the economic index, minor modifications of the index have already been introduced as a result of ORDS intramural research. The weights are revised periodically as new survey data become available. In addition, a supplementary survey of underwriters is conducted to assess changes in malpractice insurance costs which have been introduced into the index.

*Improving the Medicare Economic Index*

In September, 1978, HCFA awarded one to two-year contracts to conduct studies analyzing the ORDS survey data on physicians' income and practice costs to improve the Medicare economic index. These projects are noted below. The contractors presented results of their analyses at a conference in 1980. The conference proceedings will be published in late 1980.

Analysis of Other Types of Economic and Sociological Behavior of Physicians

Vanderbilt University analyzed: (1) various aspects of hospital-based physicians; (2) variations in third-party payment levels and practices; (3) physicians' inducement of demand for their services; and (4) malpractice insurance premiums and their effect on physician practice costs.

Analysis of Physician's Input Decisions

Georgetown University analyzed the extent and causes of variation in physician productivity, especially by specialty and size of practice and for various geographical areas. In addition, this study examined the nature and extent (if any) of productivity differences between incorporated and unincorporated solo and partnership practices.

An Exploration of Physician Behavior in Secondary Labor Markets

Boston University examined several aspects of physician visits, including physician willingness to see patients in nursing homes, physician willingness to make house calls, physicians with large Medicaid practices, and physician assignment of Medicare claims.

Physician Productivity, Remuneration Method, and Supplier-Induced Demand

Washington University in St. Louis examined how alternative remuneration methods affect the quantities of medical care provided, the number of patients treated, physician's allocation of time to treat patients, practice input and cost decisions, and physician productivity.

The Relationship Between Hospitals and Physician Costs, Outputs, Prices, and Income

Northwestern University linked the survey data on physicians' practice costs and income with information on hospital inputs and charges/costs, to investigate the relationship between hospital inputs and costs and physician income, costs, outputs and prices.

Returns, Risks, and the Terms of Capital and Insurance Market Access: Effects on the Demand for Medical Education and On Postschooling Physician Behavior

The Institute for Demographic and Economic Studies computed rates of return to medical education by specialty, comparing them to other occupations and assessing the impact on rates of return of various increases in medical education costs.

An Analysis of Physician Work Environment, Input, Pricing, and Productivity Decisions

The University of Pennsylvania analyzed interrelationships among choice of specialty, type and size of practice, patient mix characteristics, pricing practices and income, allocation of time, and labor/leisure choices.

Physician Practice Variation: Description, Implications for the Future, and Implications for Aggregate Analysis

Teknekron assessed the implications of future physician practice patterns and expenditures for changes in the aggregate supply and mix of physicians and other factors. For example, the study evaluated the potential impact of a younger physician population with a large proportion of female doctors providing services to an older population in an environment with considerably greater density of physicians relative to population.

Development of an Equitable Medicare Economic Index: An Analysis of Variation in Practice Costs Among Specialties

Teknekron also did the following: (1) analyzed geographic and specialty variation in the rations of total practice costs to net income and in the ratios of specified components of practice costs to gross income; (2) analyzed variations in absolute levels of costs by component group and in cost functions among specialties and geographic area; (3) analyzed the impact of differences found in (1) and (2) above on the economic status of physicians if fees are constrained by the Medicare Economic Index, (4) analyzed

geographical and specialty variation in the rates of change for total practice costs, for cost by component group, and for net incomes; (5) analyzed the structure and merits of alternative specifications of economic indices, the effects of different weighting schemes in the application of alternative indices, and the effects of various physician groupings; and (6) investigated the potential for development of case-mix indices for the National Ambulatory Case Survey and for merging them into the tape of 1976 physician practice costs.

**Physician Billing Behavior in California**

The Urban Institute completed a contract in December 1977 which used Medicare and Medicaid paid claims for a longitudinal sample of 5,000 solo practice physicians in Northern California to examine a wide range of physician pricing issues.[5] These issues included: (1) descriptive analysis of variations in charges and reimbursement rates between programs and geographic areas within California; (2) analysis of the impact of the Economic Stabilization Program (ESP) price controls on physicians' fees and services; (3) econometric analysis of variations in levels and rate of change of physicians' fees and the quantity of services provided; (4) econometric analyses of physicians' decisions to participate in Medicaid and to accept Medicare assignments.

The analysis of inter-program and inter-regional fee variations revealed that physicians generally charge the same amount for a procedure for Medicaid claims and for both Medicare assigned and unassigned claims. Physicians with higher than average actual charges are less likely to participate in Medicaid or accept Medicare assignment. Rural physicians, general practitioners, and general surgeons are more likely to accept assignment than are physicians in low fee areas. The study also found that when beneficiaries jointly covered by Medicare and Medicaid (who must be treated on assignment) are excluded from consideration, assignment rates decreased from 60 percent to 33 percent for general practitioners, from 56 to 37 percent for general surgeons, and from 40 to 22 percent for internists. In addition, analysis revealed that differences in average charges between programs and areas are small compared to differences among individual physicians within regions and within programs.

The analysis of the effects of the ESP price controls compared changes in indices of actual charges, reimbursement rates, service complexity, service volume, and revenues in Medicare from 1972 to 1975 to determine if there were differences between price in control (1973, 1974) and non-control (1975) years. Price controls were successful in controlling the rise in physicians' fees but were not successful in constraining the increase in expenditures for physicians services. Not only did physicians increase the quantity of their services during the ESP, but they also increased the intensity of services provided. Following the expiration of controls, the quantity of services declined slightly.

The econometric analysis of physicians price and output decisions produced several interesting results. Medicare and Medicaid reimbursement levels were found to have an impact on physicians' actual charge levels. For example, a 10 percent increase in the average Medicare reasonable charge would lead to a jump in average actual charges of between seven to eight percent. Thus, raising Medicare or Medicaid reimbursement levels would increase prices charged to all patients. The study also found empirical evidence that Medicare's customary, prevailing, and reasonable charge reimbursement method has an inherent inflationary bias. Program reasonable charge levels were found to be positively related to the quantity of services provided to Medicaid patients or on Medicare assignment and inversely related to charge levels to private patients. These findings suggest that increases in the fees physicians are able to charge private patients will substantially reduce the quantity of services provided to Medicaid patients or Medicare assignments if other factors do not change.

The analysis of physician program participation (defined as treating approximately 10 or more program patients in a quarter) found that large majorities of general practitioners, general surgeons, and internists did not participate in Medicaid, while only 10 percent of physicians in these three specialties did not treat Medicare patients. The study found strong evidence that both the decision to participate in Medicaid and the number of Medicaid patients treated are influenced by the relative levels of Medicaid and private-pay patient reimbursements. For example, a 10 percent increase in Medicaid fees would increase participation by seven percent.

In 1978, HCFA awarded two additional grants to the Urban Institute under which the data base and analysis from the contract described above are being expanded. *The Effects of Reimbursement Arrangements on Physician Services and Income from Medicare and Medicaid* will add 2,000 single specialty group practice physicians, extend the previous sample of 5,000 physicians through 1980, and add a sample of physicians from southern California. The previous analyses will be expanded to include comparisons with group practice and southern California physicians and between established physicians and recent graduates of residency programs. Other issues that will be examined include (1) the effect on price and patterns of service due to dramatic increases in California malpractice premium costs; (2) the effect of the Medicare Economic Index; (3) the changes in physician pricing and service behavior attributable to the adoption of specialty reimbursement differentials; and (4) the development of a comprehensive Medicare assignment model.

The second grant, *Aspects of Physicians' Behavior, Service Delivery, and Payment Methods in Medicare and Medicaid,* will use paid claims in the California Medicare and Medicaid programs to document trends in prices, quantity, and intensity of services for laboratory procedures, including comparisons between physician office labs, independent labs, and pathologist-owned labs. Also planned for analysis are alternative methods of indexing Medicare prevailing charges and the costs and distribution applications of different indexing methods. Researchers will also

[5] *Health Care Financing Grants and Contracts Report:* "Physician Pricing in California: Price Controls, Physicians' Fees, and Physicians' Incomes from Medicare and Medicaid."

simulate the effects of alternative physician reimbursement systems and address the effect of third-party payments on physician location and specialty choices.

**Pricing Behavior of Pennsylvania Physicians**

The contractor for this study, Pennsylvania Blue Shield, is using Medicare and Blue Shield private business data in Pennsylvania from 1973 to 1978 to examine physician pricing behavior and the implications for the level and distribution of program outlays. The specific topics being investigated include (1) descriptive analysis of the intra-State variation and longitudinal trends in physician service prices in Pennsylvania and multivariate analysis of the associated physician practice and locality socioeconomic characteristics; (2) analysis of the extent of, and trends in, the practice of price differentiation by individual physicians in Pennsylvania; (3) factors influencing physician decisions to participate in Blue Shield and accept Medicare assignment; (4) analysis of the composition of Blue Shield and Medicare derived revenues; and (5) simulation of the effects of alternative reimbursement practices. One preliminary result is that when compared to all lines of private business (customary, prevailing, and reasonable, as well as fee schedule), Medicare 1975 reimbursements were not that different from private business reimbursements. Final results on this contract will be available in 1980. An interim report is currently available as a *Health Care Financing Grants and Contracts Report.* [6]

**Study of Trends in Physicians' Fees**

This five-year grant, awarded in 1978 to Pennsylvania Blue Shield, will provide HCFA with a baseline data set to assess changing price and service patterns in the physician sector. In conjunction with other ongoing studies, this data set will enable HCFA to document physician responses to reimbursement changes, locality consolidations, or the effects of the economic index. The data set for this grant includes Medicare and private Blue Shield paid claims from 1974 to 1983 for five States—Pennsylvania, South Carolina, Vermont, New Hampshire, and Colorado. Both physician and procedure data files are being developed from paid claims records and prices. Quantity and intensity indices will be constructed for specific procedures as well as for individual practices, counties, and States. Trends for physician billed charges and Medicare and private payments will also be analyzed.

**Analysis of Customary and Prevailing Fees, Carrier Administrative Practices, and the Supply Response of Physicians**

Harvard University was awarded a contract in February of 1976 to (1) identify patterns of physicians' charges; (2) describe how the prices for physicians' services are determined (i.e., Are physicians price-takers or price-setters? What roles do Blue Shield plans and commercial insurance companies play in pricing decisions?); and (3) explain how prices influence physicians' behavior in terms of quantities and mix of services supplied, work-leisure trade-off, and specialty choice.

To address these issues, the contractor is doing the following: (1) analyzing physician pricing patterns among localities and specialties; (2) developing a normative relative value schedule based on input factors for each specialty and each procedure to assess current relative reimbursement rates; (3) assessing the extent to which physicians in different States adhere to a common relative value system in their pricing decisions; (4) conducting in-depth interviews with insurance company executives to analyze the extent to which insurance firms may exercise some control over costs and the nature of their relationship with providers; and (5) designing several economic models to test the degree of heterogeneity of the physicians' market, the influence of prices on various supply responses, and the hypothesis that physicians are price-setters.

Initial findings show that analysis of actual charges to Medicare beneficiaries in 24 States in 1971 for 13 relatively standard and common procedures revealed fees to be widely but not normally distributed within communities. The distributions of surgical procedures in many States appeared to be tri-modal. In addition, the study found that in 1971 two to threefold differences existed in charges among physicians for routine office visits, with the range larger for medical procedures than surgical procedures. One difference between the distributions of surgical and medical procedures is that medical visit procedures tend to be skewed to the left, indicating more charges are concentrated in the lower price range; the opposite is true for surgical procedures. The study also found that 1971 Medicare reimbursements would have increased in most States, often by 10 percent or more, if fee schedules had been established at the 75th percentile. Total payments, however, would have decreased in many States by as much as 10 percent (or more) in a few cases if fee schedules had been established at the 50th percentile.

The study also tested whether physicians use a standard relative value schedule (SRV) with conversion factors of their own choice in pricing decisions. Fees for selected medical and surgical procedures for individual physicians were statistically fit to the RVS promulgated in that State. The study found that physicians do not consistently adhere to a common RVS in their pricing decisions.

The study also developed a methodology to assess the relative values of surgical and medical visit procedures on the basis of resource cost. The resource costs considered included the time to perform the procedure, the complexity of the service, interspecialty differences in the opportunity costs of training, and overhead costs. The study calculated the resource costs for 26 surgical procedures in five surgical specialties and compared them with Medicare prevailing charges and California Relative Value Study unit values. The results indicate dramatic discrepancies between existing reimbursement levels and resource costs for office visits compared with surgical procedures. Depending on the procedure and specialty,

[6] "Price Setting in the Market for Physicians' Services: A Review of the Literature," NTIS number to be assigned.

the study found that on the average, surgical procedures are overvalued or medical visits are undervalued by a factor of between two and three.[7]

Several models of the factors governing the labor supply and pricing behavior of the doctor are still being formulated. These theories stress different aspects of the health care services market. One effort will analyze the existence of cartel-like behavior on the part of medical specialists. A second will investigate the impact of supply upon utilization of services. A counterpart study will operate under the assumption that differences in utilization may be accounted for exclusively by variation in patient characteristic. Yet another will analyze physician behavior within the context of a traditional human capital model, appropriately modified. The entire study will be completed in 1980.

**Determinants of Levels of Physicians' Fees**

The contractor for this study, the Human Resources Research Center of the University of Southern California (USC), plans to use private business and Medicare paid claims data from several Blue Shield plans to study physician pricing behavior. The analyses planned for this study encompass a number of areas. First, descriptive tabulations are to be prepared comparing physician charges and third party allowed charges over time and by line of business, geographic areas such as State or county, and other factors. Second, analysis is planned of variations in prices and utilization of services and of physicians' willingness to participate in Blue Shield private business and Medicare programs or to accept Medicare assignments.

A data file on individual physician practices and a county data file are being prepared to analyze these issues. Data for this study are being supplied by several Blue Shield plans to the Blue Shield Association, which in turn performs data extraction and provides analysis tapes to USC. The data supplied by the individual plans cover 65 individual procedures for a sample of physicians over a four-year period. Private insurance data are being provided from all participating Blue Shield plans. Medicare and Medicaid data are being provided to the extent available from these plans.

The study is organized into separate phases. The first phase was a planning stage. The second phase, which involves collection of the data from the individual Blue Shield plans, and an analysis of four specific plans, will be completed in 1980.

**Comparison of Medicare and Private Customary Charge Distributions**

In 1978, the Blue Cross-Blue Shield Association received a contract to compare 1975 Medicare and private business customary charge distributions by specialty and geographic area for Florida and Massachusetts. Preliminary findings indicate that the variation of customary charges within areas was extensive and that there was no price differentiation by individual physicians in their charges to Medicare and Blue Shield's private business.

[7] Hsaio, W.C. and W.B. Stason, "Toward a Relative Value Scale for Medical and Surgical Services," *Health Care Financing Review,* Volume 1, No. 2, Fall 1979, pp. 23-38.

**Study of Physician Reimbursement Under Medicare and Medicaid**

In 1979, the City University of New York (CUNY) completed a study of various aspects of Medicare and Medicaid physician reimbursement. The study explored interrelationships among Medicare carrier discretionary and administrative practices and fee levels, Medicare assignment, and socioeconomic characteristics of medical markets. A three-pronged analysis was conducted involving a national study of all 62 Medicare carrier areas, a micro-study of data from Queens and Nassau counties (served by different carriers), and Medicaid data from Queens.[8]

Two techniques were used to measure the effects of carrier administrative practices on fee levels—a regression model using all 62 Medicare carriers and a simulation of changes in administrative practice parameters. The inter-carrier regression model used price indices developed from fees for a number of individual procedures as the dependent variable. The 50th percentile was used as the fee measure rather than the 75th percentile, since the latter has been adjusted by the Economic Index. The study found that some discretionary administrative practices and performance measures had an effect. The predominant variables of signficiance were the health economy variables (especially percent of the population that is urban), which the researchers interpreted as a demand/supply interaction factor. The carrier performance variables of significance were the claims investigation rate, bill reduction, and claims processing time. The measures of aggressiveness of carrier claims control were also significant variables in explaining Medicare assignment levels.

The simulation of changes in administrative practice parameters was conducted with actual claims data in Queens and Nassau counties and performed for a variety of fee measures. One administrative practice simulated was the merger of Medicare claims with the carrier's non-Medicare claims in computation of claims profiles. The study found significant differences when prevailing charges were computed on Medicare only or on non-Medicare only claims, but differences were not sifnificant when calculated for both Medicare and non-Medicare data. The effect of localities was simulated by combining Nassau and Queens into one locality. The results showed no significant differences between the combined file and each of its components. The effect of specialty designation was simulated using various specialty groupings. No significant effect of specialty designation was found at the 75th percentile.

The study also analyzed market behavior of both providers and beneficiaries in Queens and Nassau counties as revealed by claims data. The study reported similarities in distributions between the two counties. The Nassau market, however, had providers with more patients, services, and revenue, and these patterns were mirrored in beneficiary utilization distribution. It is believed that this arises in part from the higher levels of income in Nassau and also because Queens residents go outside their county of residence for care, particularly for hospital-based and specialty services.

[8] See *Health Care Financing Grants and Contracts Reports:* "Study of Physician Reimbursement Under Medicare and Medicaid," Volumes I and II.

The study of Medicaid in Queens found that fees under Medicaid were lower than allowed charges under Medicare. In addition, the average number of services provided by each physician per patient was lower under Medicaid, but the average number of patients per physician was greater.

Because of data and methodological problems, caution should be used in interpreting and/or generalizing from the results. An administrative survey was the national source of data on Medicare carriers' practices. However, since the survey was not designed for research purposes, there may be unintended variability in the responses. The forces at work in the reasonable charge process are dynamic over time, yet only a single year's worth of data was analyzed. Also the qualitative responses to the administrative survey were transformed into quantitative ones. This may have contributed to the lack of significant findings with respect to most carrier administrative practices. Finally, the micro-study should be seen as a very particular case study. It is not clear that a New York City-suburban comparison is directly applicable to other urban situations. However, findings from this project have helped to further rationalize the standardization of administrative procedures of Medicare carriers which affect program performance.

**Alternative Approaches to Physician Reimbursement Under Medicare**

This one-year grant, completed by the City University of New York (CUNY) in 1979, evaluated the effect of alternative methods of calculating fee profiles on program outlay, physicians' revenues, and beneficiary out-of-pocket expenses. Four alternative methods were selected for study. The current method, which uses the prevailing charges adjusted by the Economic Index, served as the benchmark against which all the other methods were compared. The unadjusted prevailing - 75th percentile of the distribution of weighted customaries - was included in the study to assess the effect of the Economic Index. Prevailing charges computed without regard to the specialty designation of the physicians were included to see the effect of specialty designations on the three participants in the program: the government, the physicians, and the beneficiaries. In addition, two systems (with and without specialty differentiations) were simulated based on the average of allowed charges in a previous period. The simulations were conducted using claims files from Medicare in Queens county for 1976 and 1977.

The results suggest that (1) the Economic Index is effective in holding down program outlays, and (2) that different specialties are affected by the index in different ways. Elimination of specialty reimbursement differentials would result in the lowest program outlays, and revenues for 65 percent of physicians would increase or remain the same. An average allowed charge payment system, with a stipulation that no physician reimbursements be reduced, would have little net effect on program outlay, physician revenues, and beneficiary burden.

**Customary Charge Data Analysis**

ORDS intramural staff are using customary charge data from Medicare carriers to analyze customary patterns and to simulate the effects of alternative reimbursement formulae. The data base covers 30 procedures from fiscal year 1978 in one or more of the six specialties that account for most Medicare Part B reimbursements (i.e., general practice, internal medicine, general surgery, ophthalmology, orthopedic surgery and urology). ORDS is converting the data tapes into a common format suitable for analysis. Simulations are expected to reveal how benefits would be redistributed among physicians and patients as a result of various alternatives, such as eliminating or restructuring locality differentials in prevailing charge screens within States or specialty differentials within localities, changing the 75th percentile to a different measure of statistical tendency, or assessing the effect of the Medicare physicians' Economic Index.

**Aspects of Medicare in Colorado**

In 1978, the Stanford Research Institute (SRI) was awarded a three year grant to analyze a variety of issues using Medicare paid claims from Colorado Blue Shield for 1974 to 1978. These issues include: (1) the impact on physician pricing, service behavior, and use of Medicare services resulting from changeovers from a 10-locality system for prevailing charge determination to a single Statewide area (2) significant factors in determining assignment of Medicare claims, (3) effects of private complementary insurance on use of Medicare services, (4) utilization patterns and characteristics of selected groups, such as joint Medicare-Medicaid beneficiaries, beneficiaries in the first year of eligibility or last year of life, and continuously enrolled eligibles, (5) the extent of out-of-plan utilization of services by Medicare beneficiaries who are enrolled in HMOs, (6) Medicare beneficiaries' reasons for joining HMOs, their satisfaction with the HMOs, and their utilization of services.

**Billing and Collection Analyses of Uninsured Persons and Services by Fee-For-Service Physicians**

For this study, American Health Systems examined 12 months of billing and 18 months of related collection experience from several hundred physicians in Minnesota, Arkansas, and Florida who were clients of a common billing agent. The study emphasized (1) experience for uninsured persons, (2) experience for uninsured services, (3) experience for the portion of fees not fully reimbursed by third-party programs, (4) usual fees for common services, (5) frequency and amounts of fees, discounts, or waivers, (6) bad debts as a portion of billings, (7) the relationship between insurance coverage or lack of coverage and fee variations, bad debts, and quantity of services provided, (8) the varying effects of insurance on fee levels, quantity of services, and physicians' net revenue according to physician specialty, and (9) total amount of billing

minus discounts, waivers, or bad debts. The final report was submitted in 1977.[9]

The findings indicate that insurance exerts an upward influence on average fee charged, with insured patients generally being charged a higher fee for a given set of services and consuming a costlier mix of services. Insurance also exerts an upward influence on the number of visits per patient but not on the number of procedures per visit. It was estimated that substantial increases in physicians' gross revenues would result if all patients were charged the same fees and received the same amount and mix of services as the insured patients. Sizable increases in collection could also result if all patients were to have the same collection rate as the insured.

**Physician Participation in Medicaid Programs**

The American Academy of Pediatrics received a two-year grant in 1978 to study a variety of State Medicaid programs and to determine how individual program characteristics affect physician participation in Medicaid. The study involves a sample survey of pediatric practices in 13 selected States chosen for their divergent Medicaid program characteristics, with regard to such things as eligibility, scope of benefit package, and fee levels. After selecting States, a random sample of approximately 800 physicians in those States was interviewed regarding participation in Medicaid and various aspects of individual State programs which may enhance or hinder physician participation. Pediatricians were asked to recount aspects of their experience with their State Medicaid programs. Various subjects, including the procedures followed in filing for Medicaid reimbursement and the administrative costs incurred in providing services to Medicaid patients, were addressed. In addition, each physician was asked to keep a log of patient visits to collect data on the types of services rendered for each visit and the mode of payment. Data on 28,000 patient visits were collected.

**Physician-Induced Demand**

A controversial subject among those concerned with physician economics is whether physicians induce demand for their own services. Based on a 1975 survey of Medicare and Medicaid prevailing charges, researchers have identified significant inter- and intra-area variations in fees which could not be explained by cost of living differences.[10] Relatively high fees were found to occur in areas which had higher physician-population ratios. These variations are not consistent with a perfectly competitive market for physicians services.[11] On the other hand, the Urban Institute and the City University of New York found some evidence of a negative correlation between fees and physician density.[12] The Urban Institute study also revealed that individual physicians did not appear to discriminate between payers when billing for specific services.

A two-year grant ("Physician-Induced Demand: Surgical Operations and Hospital Days") was awarded in 1978 to Boston University (BU) to further investigate the physician-induced demand issue. Specifically, BU researchers examined variations in surgery that might reflect physician-induced demand. Analysis will include: (1) description of the variation in surgery rates across U.S. standard Metropolitan statistical areas (SMSAs) and counties and how these rates have changed over the 1969-77 period; (2) explanations of these variations in surgery rates both cross-sectionally and intertemporally as a function of the supply of surgeons *inter-alia;* (3) explanations of the variations in the mix of surgical procedures cross-sectionally to find out why some areas have high rates for one kind of surgery and low rates for another; and (4) testing the physician-induced demand hypothesis for surgery. The hypotheses were tested using data from secondary sources, with the key data source the annual National Center for Health Statistics Health Interview Surveys, 1969-1977.

**The Role of Fee Schedules in Physician Reimbursement**

This four-year grant, awarded in 1979 to Princeton University, will examine various aspects of the role of fee schedules in physician reimbursement under the third-party payment systems. The specific tasks under the study include (1) development of the conceptual basis for fee schedules and analytic frameworks for assessment of changes in them; (2) descriptive analyses of fee schedules and relative price structure in the United States; (3) review of fee schedules and relative value studies in several foreign countries—Canada, France and West Germany; and (4) resurvey of a sample of general practitioners in Quebec and analysis of their responses to fee schedules.

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[9] NTIS No. PB291431/AS: "An Examination of the Impact of Methods of Reimbursement on Physicians' Income."

[10] Burney, I.L., *et al.,* "Geographic Variations in Physicians' Fees: Payments to Physicians Under Medicare and Medicaid," *Journal of the American Medical Association,* September 22, 1978, Vol. 240, No. 13, pp. 1368-1371.

[11] Institute of Medicine, *Medicare and Medicaid Reimbursement Policies* (Washington, D.C.: National Academy of Sciences, March 1976); Schieber, G.J., *et al.,* "Physicians Fee Patterns under Medicare: A Descriptive Analysis," 294 *New England Journal of Medicine:* 1089-1093, May 13, 1976; Burney, I.L., *et al,* "Geographic Variation in Physicians' Fees: Payments to Physicians Under Medicare and Medicaid" *op. cit;* Burney, I.L., *et al,* "Medicare and Medicaid Physician Payment Incentives," *Health Care Financing Review,* Volume I, No. 1, Summer 1979, pp. 62-78.

[12] See Urban Institute study of physicians billing behavior in California and City University of New York study of physician reimbursement under Medicare and Medicaid.

**The Doctor Under National Health Insurance: Foreign Lessons for the U.S.**

In 1978, Columbia University completed a grant, initially awarded by the Social Security Administration and transferred to HCFA, focusing on physician payment in eight foreign nations: Canada, France, Belgium, the Netherlands, West Germany, Switzerland, Sweden, and Great Britain. The final report features a 10-chapter analysis on "Negotiations in Medicine," and reviews in detail the structure of each system, with emphasis on how negotiations with the medical profession have been conducted.[13] Its final chapter discusses the prospects for such negotiations in the U.S. The remainder of the final report discusses aspects of cost containment related to physician services under these national health insurance schemes and provides discussions of alternative compensation methods, cost controls over fees, productivity, primary care (including preventive and long-term care), physician recruitment and distribution, and the nature of fee schedules. The study argues that the U.S. can greatly benefit from these foreign nations' experience with the medical profession under national health insurance and suggests that structured negotiations are likely to be an important part of any national health insurance plan in this country.

**The Effect of Medical Staff Characteristics on Hospital Costs**

In 1977, Northwestern University completed a grant, initially awarded by the Social Security Administration and transferred to HCFA, which examined the effect of physician characteristics on hospital costs.[14] The researchers assembled a data base linking hospital and physician staff characteristics for a sample of 50 California hospitals and 2,900 physicians for 80,000 cases. They found that hospital staff characteristics explain a greater portion of variability in hospital costs per admission than traditional case-mix measures. Attempting to hold case-mix constant, the study found that non-medical and surgical specialists tend to depress hospital costs, whereas pediatricians tend to raise them. They interpreted these results as the consequence of greater concern and caution among hospital-oriented physicians to the use of hospital resources, reasoning that these physicians have a greater financial stake in the efficient operation of the hospital. Younger physicians were found to use more resources than older physicians to treat specific diagnoses.

[13] Glaser, W., *The Doctor Under National Health Insurance: Foreign Lessons for the United States*. New York: Bureau of Applied Social Research, Columbia University, 1977.

[14] For detailed results, see Pauly, M., "The Effect of Medical Staff Characteristics on Hospital Costs," in *Physicians and Financial Incentives,* Gabel, J.R., *et al,* ed. (Government Printing Office, Washington, D.C., forthcoming).

**Study of Reimbursement and Practice Arrangements of Hospital-Based Physicians**

The primary objective of this Arthur Andersen study, completed in 1977, was to obtain financial and related data on certain categories on hospital-based physicians (HBPs), and to analyze these data in terms of how both HBP earnings and contractual arrangements vary according to the characteristics of the hospitals and the regions in which they are located.[15] Other objectives included an exploratory analysis of how New York State's prospective reimbursement system affected HBPs.

The analysis was conducted in two phases. Phase I involved a major data collection effort, which covered 120 hospitals, 600 departments and 400 contracts, and 2,600 HBPs. There were 500 radiologists, 425 pathologists, 291 anesthesiologists, 612 cardiologists, 418 emergency room physicians, and 382 other specialists in the sample. This phase included a comprehensive descriptive analysis of the relationships between the amount of compensation arrangements, and various hospital, departmental, contractual and other characteristics for three specialties—radiology, pathology, and anesthesiology. Phase I also included a descriptive analysis of 185 written contracts between hospitals and either individual or groups of HBPs. Phase II included an extension of the descriptive analysis into two additional specialties—cardiology and emergency room. In addition, multivariate analysis was applied to the sample data. Finally, Phase II included exploratory case studies of the effects of prospective reimbursement on HBP compensation and practice arrangements in 10 New York State hospitals.

The major categories of data collected from the participating hospitals were (1) hospital characteristics, reimbursement data, revenues, expenses and capitalization, utilization and statistics; (2) census and physician data for the county and SMSA in which the hospital was located; (3) departmental revenues, expenses, statistics, physician counts, and physician compensation data (including methods and amounts); and (4) data on each HBP contract within the department, including terms, physician counts, and compensation data. The sources of data included Medicare cost reports, American Hospital Association data, U.S. Bureau of the Census data, HEW data, American Medical Association data, hospital financial statements and internal records for the fiscal year ended in 1975, and contracts (or other written agreements) between each hospital and its HBPs.

The Phase I descriptive analysis of the study indicated that the five specialty departments which were evaluated contribute significantly to the total gross charges (29 percent) and total fully allocated costs (22 percent) of their hospitals. The total HBP remuneration was found to represent a significant portion of total direct costs in these departments (ranging from under 30 percent in pathology to over 70 percent in anesthesiology). Average full-time equivalent earnings were $103,000 for radiologists, $98,400 for pathologists, $80,000 for anesthesiologists, $65,000 for cardiologists, and

[15] NTIS No. PB 281125/AS

$54,700 for emergency room physicians. The descriptive analysis also showed that salary arrangements are associated with lower average FTE earnings, and percentage arrangements with higher average FTE earnings. The term "percentage arrangements" included all contractual arrangements in which physician remuneration was calculated by applying a percentage factor to either gross or net departmental revenue. HBPs in teaching hospitals appear to have lower FTE earnings than in non-teaching hospitals, and HBPs in small and medium hospitals tend to earn more on an FTE basis than those in large hospitals. Average FTE earnings were found to vary by region, with generally higher averages in the West and North Central region and lower ones in the South and Northeast regions.

The major findings of the analysis were (1) that more than 50 percent of the arrangements between hospitals and HBPs are oral; (2) that salary compensation arrangements tend to take an oral form; percentage arrangements are more likely to be written contracts; (3) that approximately 75 percent of the contracts were with group practices; and (4) that HBPs compensated under a percentage arrangement tend to receive far fewer fringe benefits and pay more of their departments' expenses than do HBPs compensated under a salary arrangement.

The results of the multivariate analysis reinforced the findings from the descriptive analysis that there are significant differences between HBP compensation under a salary versus a percentage arrangement. This difference appears to exceed the additional expenses incurred by HBPs under a percentage arrangement. Hospital and area characteristics are more powerful in explaining differences in the type of compensation arrangement than in determining the amount of compensation. The variables which are statistically signficiant (region, teaching status and hospital size, and the physician-to-bed ratio) generally conform to the hypothesis that labor market conditions and bargaining power are major factors in the determination of the type of compensation arrangement.

The major findings of the exploratory case studies in New York State were that the prospective reimbursement system has contributed to a tendency for the hospitals to limit HBP remuneration, created incentives for the HBP to shift to a direct billing arrangement, and helped create an atmosphere that is not conducive to attracting HBPs to the State or retaining those that currently practice in New York.

The results of this study, particularly those regarding HBP incomes and percentage reimbursement arrangements, had a significant impact on subsequent proposed legislation calling for the termination of percentage reimbursement.

**Procedural Terminology, Coding, and Packaging**

A fundamental prerequisite to the development of an efficient and equitable reimbursement system is a common procedural terminology and coding system. Such a system would allow physicians to accurately communicate and consistently report the services they perform, while third-party payers would be able to consistently and economically apply reimbursement rules and practices. Currently, a variety of procedure coding systems is being used by Medicare carriers and Medicaid State agencies to determine physician reimbursement. The level of detail at which procedures are identified and the number of procedures for which independent codes exist and influence the amount of payment for physicians' services.

ORDS intramural research has indicated that the average intensity of services reimbursed under Medicare increased when the California carriers switched from using the 1964 California Relative Value Study coding system to the 1969 version.[16] The Commonwealth of Virginia was awarded a contract to analyze the conversion from the Virginia Medical Assistance program's procedural terminology and coding system to one based on the third edition of Current Procedural Terminology.[17] The analysis examined the effects on the Virginia program's administrative sytem and benefit expenditures as shown by data gathered for six months before and 12 months following the new system's implementation in 1975. System effects were illustrated in such terms as input quantities, internal and external input error rates, productivity rates, aggregate processing costs, and cost per unit. Results indicated total outlay increases were no larger overall than would be expected if no change in systems had occurred. However, increases in intensity and cost per unit of service were observed for each type of service. The net effect was tempered by a shift in the mix of services, predominately a decrease in proportions of surgery.

Another contract to study procedure terminology and coding, entitled *Simulation of the Effects of Changes in Medical Procedural Terminology Systems* was awarded in 1978 to Moshman Associates. This project will assist HCFA in its long-range effort to establish a common medical procedural terminology system for use in the Medicare, Medicaid, and PSRO programs. Moshman researchers are analyzing and comparing the major procedural terminology and coding systems in terms of their representation of conventional medical practice. Moshman is also developing more aggregate reimbursement groupings and simulating alternative reimbursement schemes. The development and characteristics of three major systems have been documented.[18] The research has

[16] Sobaski, W.J., "Effects of the 1969 California Relative Value Studies on Costs of Physician Services Under SMI," *Health Insurance Statistics,* HI-69, USDHEW, ORS (Washington, D.C.: 20 June 1975).

[17] NTIS No. PB 280210/AS: "Alternate Methods for Describing Physicians' Services Billed and Performed."

[18] NTIS No. PB290875/AS: Moshman Associates, Inc., "Medical Procedural Terminology Systems: Development and Characteristics of Three Major Systems for Third Party Payment," *Health Care Financing Research and Demonstration Series,* Report No. 4, USDHEW, HCFA, OPPR (Washington, D.C.: No date).

indicated that opportunities for itemization in billing (i.e., unpackaging of services) have increased. This greatly enhances the potential of taxonomic inflation, which is said to occur over time when health care billing claims show an increase in the number or complexity of services while the services provided actually remain the same. The effects of medical procedural terminology changes upon program outlays, utilization statistics, reimbursement levels, and claims processing systems are now being assessed. Researchers are estimating the outlay effects of converting 25 currently used systems. Materials are being prepared to simplify conversion of the more than 100 systems used in Medicare and Medicaid physician reimbursement into one system. This project will be completed in late 1980.

Related to the development of methodologies to classify and describe medical procedures and services is the issue of appropriate groupings of services for reimbursement purposes. Third party payers may choose to reimburse for all the resources needed to treat a particular case, diagnosis, or episode of illness. For example, reimbursement for surgical procedures frequently includes compensation for preoperative hospital visits, postoperative hospital visits, and posthospital after-care visits associated with treatment of the case. Kaiser Foundation Research Institute was awarded a grant in 1978, entitled "An Episode Approach to Utilization Costs and Effectiveness in Health Care" to probe this issue. The researchers are using physician consultants to select several diagnoses characterized by frequency of occurence or extensive resource utilization. Data files are being constructed to determine and explain variations in patterns of services and care associated with each diagnosis. The objectives of the study are to determine and measure rates of technical substitution between inpatient and ambulatory care, professional and para-medical care, telephone and face-to-face communications, and similar alternatives, in order to identify the most efficient and effective package of services for each diagnosis.

**Physician Reimbursement Arrangements in HMOs**

In 1978, Interstudy completed a grant which studied the effects of physician reimbursement arrangements in health maintenance organizations (HMOs) on physicians' hospital use.[19] Nine HMOs with different physician payment methods and different arrangements for physicians to share in hospitalization losses or surpluses were examined. The study found that individual physicians in HMOs are rarely at risk for hospital costs; where they are at risk, the level of financial risks does not appear to directly cause physicians to lower hospital inpatient utilization. The researchers concluded that financial risks can serve to heighten physician awareness and motivate doctors to adopt more stringent control mechanisms which directly modify practice behavior. Competition or the threat of competition was also found to motivate physicians to accept risk and/or self-impose rigorous mechanisms to modify utilization behavior. Peer interaction also appeared to be a cost-effective modifier of physician practice behavior.

Another grant, to study physicians in prepaid health care settings was awarded to the Palo Alto Research Foundation in 1978. This project, entitled "Medicaid Care Use Under Two Comprehensive Prepaid Programs," was an 18-month study of medical care use under two comprehensive prepaid programs, involving analyses of hospital utilization, outpatient ancillary services use, and out-of-plan use of clinic and HMO settings. The project completed earlier work comparing and contrasting the utilization and cost experience of similar patient groups enrolled in one of two comprehensive prepaid programs: a traditional HMO and a large, fee-for-service multispecialty clinic.[20] The earlier work addressed factors affecting the choice between the two plans and use of physicians' services under the plans. The findings showed that while HMO members averaged about one-quarter fewer visits per member-year than clinic members, the difference appeared to relate to the fact that 42 percent of the traditional HMO members had a specific plan physician as a regular source of care, compared to 87 percent of the clinic members. The clinic members also received more preventive services than did the traditional HMO members. The latter phase of the study assessed the relationships between hospital and outpatient utilization for evidence of substitution. Possible differences in use of outpatient ancillary services were examined to discern the effects of physician characteristics and practice settings. Out-of-plan use was analyzed in terms of covered and noncovered services, cost-sharing, and interviewees' reasons for going outside the plan.

**Graduate Medical Education: Financing, Costs, and Organization**

In 1978, the Urban Institute was awarded a three-year grant to study three major aspects of graduate medical education: how graduate medical education is financed, what effects reimbursement has on various components of graduate medical education, and how teaching programs influence costs and resource use within teaching hospitals.

To analyze how various third-party insurers reimburse teaching hospitals, the researchers are conducting a survey of all hospitals with more than 50 beds. Questions are focused on reimbursement for services provided by outpatient and ambulatory clinics, teaching physicians' salaries, patient care services provided by teaching physicians, and house staff stipends.

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[19] This grant was transferred to HCFA from the Social Security Administration in 1977. The final report is available from the National Technical Information Service, NTIS No. PB290879/AS.

[20] Scitovsky, AA, N. McCall, and L. Benham, "Factors Affecting the Choice Between Two Prepaid Plans," *Medical Care,* 16:8 (August 1978) pp. 660-681.

The second issue is being addressed under three discrete analyses. One such analysis focuses on the impact of reimbursement on methods of compensating teaching physicians; another is looking at the impact of reimbursement on house staff stipends. The focus of the teaching physician analysis is on the hospital-based specialties of radiology, pathology, and anesthesiology. The third analysis is of the impact of reimbursement on the supply, specialty mix, and geographic distribution of residency positions offered.

The final issue is the effects of teaching programs on costs, ancillary services, and length-of-stay in hospitals. This analysis will consider such questions as whether, having adjusted for case-mix, patients in teaching hospitals receive more ancillary services than patients in non-teaching hospitals; whether, having adjusted for case-mix, teaching or non-teaching hospitals have longer lengths of stay; whether residents serve, in part, as substitutes for other personnel such as RNs; and whether particular mixes of training programs affect costs in teaching hospital.

The Urban Institute plans to use five national data sets to analyze these issues: (1) the 1975 Institute of Medicine survey of 1,000 teaching hospitals, (2) the Vanderbilt University hospital file; (3) the 1974 American Hospital Association survey of medical staff organizations; (4) the 1973 Professional Activity Study; and (5) the 1973 Hospital Administrative Services.

**Physician Reimbursement Demonstrations**

*Physician Fees' Impact on Utilization and Participation*

In October of 1976, the Maryland Department of Health and Mental Hygiene implemented a demonstration to determine whether higher and variable physician fees for Medicaid services lead to reduced use of outpatient and emergency room clinics and increased physician participation in the Medicaid program. The demonstration was based on the hypothesis that reimbursement at the market level may result in both enhanced access to care and decreased aggregate Medicaid costs. The latter is expected to occur due to diversion of Medicaid recipients from expensive outpatient and emergency room clinics to office-based physicians.

Under the demonstration, physician fee schedules in one county were made variable or reflective of relative magnitude of effort per visit. The fee schedules remained at the Statewide level of $7 per visit in a matched county. All primary care physicians in the experimental county agreed to participate in the demonstration at the higher reimbursement rates. Potential recipients and county welfare and health departments were also notified about the newly-expanded supply of physicians in Medicaid. Beginning in fiscal year 1975, Medicaid beneficiary utilization and cost data for physician inpatient and outpatient services were collected for the experimental and comparison counties. A preliminary analysis by the State has suggested non-significant differences in utilization and cost savings resulting from the theorized diversion of patient flows from hospital outpatient and emergency room utilization to office-based physicians. The demonstration is expected to end in late 1980. An independent assessment of the project's impact will be conducted.

*Physician Assignment Rate Improvement Demonstrations*

A fundamental aspect of any third-party reimbursement system is the willingness of physicians to treat program beneficiaries and beneficiary financial protection from physician charges above what particular insurance programs will pay. Medicare, Medicaid, Blue Shield plans, and commercial insurers employ a variety of physician participation mechanisms.

Under Medicare, payment for physician services may be made in either of two ways. In the first case, if the physician agrees to accept the reimbursement rate determined by Medicare (i.e., the reasonable charge) as payment-in-full (i.e., he or she "accepts assignment" of the benefit), the doctor bills the program directly—except for cost-sharing amounts. Alternatively, the physician may bill the Medicare beneficiary for any amount, and the beneficiary is financially responsible for the entire difference between what Medicare pays and what the physician bills. Under Medicaid, the physician must accept the program-determined reimbursement as payment-in-full and may not bill the patient above what the program pays. Most Blue Shield plans have participating physician arrangements whereby participating physicians sign an agreement to accept the Blue Shield determined reimbursement as payment-in-full for all patients. Commercial insurers do not generally reimburse the physician directly; rather they reimburse the patient, who in turn pays the physician.

Nationally, the assignment rate for Medicare supplemental medical insurance claims (Part B) has declined from a peak of 61.5 percent in 1969 to 50.6 percent in 1978. This drop indicates that an increasing proportion of health costs must be borne by the beneficiary who, in the case of non-assigned claims, is responsible for billed amounts exceeding the reasonable charge. In an effort to reverse this trend, a multi-faceted approach is being planned to demonstrate ways of increasing Medicare assignment rates. These demonstrations tentatively include the health credit card, enhanced professional relations and beneficiary education, periodic interim payments, administrative improvements, and fee schedules.

Under the health credit card plan, physicians accepting assignment would receive payment based on 100 percent of allowed charges for covered services. Instead of physicians collecting coinsurance and deductibles from beneficiaries, the carriers would collect these amounts from beneficiaries. In addition to the assignment rate variable, other factors to be examined include the bad debt loss resulting from the extension of credit to beneficiaries.

Enhanced professional relations and beneficiary education would improve physicians' and beneficiaries' understanding of the program. This area might include publication of directories of physicians accepting assignment, distribution of prevailing charge screens, periodic informational publications, seminars, and lectures.

Periodic interim payments for assigned services have been proposed as a means of improving cash flow for physicians accepting assignment. These payments would be based on the previous year's reimbursement level and be adjusted on a monthly or quarterly basis.

Administrative improvements would reduce the difficulty and attendant costs that physicians experience in dealing with the Medicare program and that beneficiaries experience in collecting their Medicare, Medicaid, and/or complementary insurance benefits. This area might include forms and billing simplifications, improved claims processing accuracy and timeliness, benefit coordination, and uniform coding and terminology.

Fee schedules would replace the multiple screen reasonable charge methodology so that payment would be based on the lower of the submitted charge and the fee schedule amount. Elimination of locality and specialty payment differentials might be a feature of such fee schedules.

ORDS plans to issue a request for proposals in 1980 to implement the Assignment Rate Improvement Demonstrations.

# Chapter VIII
# Program Evaluation

## Introduction

ORDS conducts studies to evaluate the effectiveness of certain key HCFA programs.[1] One of ORDS' major evaluative efforts involves the continuing assessment of the Professional Standards Review Organization (PSRO) program and its impact on the quality and cost of health care services to Federal beneficiaries. A second area of investigation is the Maximum Allowable Cost (MAC) Program for Drugs, its cost-effectiveness, and its impact on total outpatient Medicaid reimbursements. Another initiative is a feasibility study for the evaluation of the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program's impact and cost-effectiveness. Also discussed in this section are research efforts concerning access to, and distribution of, benefits and costs under Medicare and Medicaid, Medicaid program management, intergovernmental health policy, and national health plan proposals.

## National PSRO Evaluation

The 1972 amendments to the Social Security Act, Public Law 92-603, established the Professional Standards Review Organization (PSRO) program under a dual mandate: to minimize the costs of providing care to Federal beneficiaries under the Medicare, Medicaid, and Maternal and Child Health programs, and to assure that professional standards of medical care are observed in the provision of care. The PSRO program was designed to ensure that Federal and State expenditures for these programs are spent on medically necessary care that is consistent with professional standards and provided in the least costly setting possible. At this time, the program stresses hospital utilization control as a means of containing health expenditures.

Most PSROs adopted HHS' model acute care hospital review plan. This model plan consists of three review components. Under the first component, concurrent review, admissions are reviewed against physician-established criteria of medical necessity. Certified admissions are assigned an initial number of days according to local diagnosis-specific norms of care. Periods of hospitalization extending beyond the initial certified number of days are reviewed to determine whether continued hospitalization is warranted.

The second component of PSRO review is medical care evaluation (MCE) studies. MCEs consist of in-depth retrospective reviews to determine whether certain criteria that assure professionally accepted standards of care were met. The third review component, profile analysis, is a statistical analysis of aggregate patient care data conducted after patient discharge. This analysis provides information on patterns of utilization and care.

The Medicare and Medicaid Anti-Fraud and Abuse Amendments, Public Law 95-142, require the Secretary of DHHS to annually submit to Congress a complete report on the PSRO program's status, administration, impact, and cost, with recommendations for legislative changes. The first PSRO evaluation was performed by the Public Health Service's Health Services Administration. The evaluation responsibility was transferred to HCFA after its creation in 1977. ORDS published the second PSRO evaluation in January 1979.[2] The third PSRO evaluation will be completed in 1980.

The 1978 evaluation indicated that PSROs have reduced Medicare hospital utilization to the point where the program's concurrent review activity now pays for itself. Eighty-one of the 96 PSROs studied saved Medicare days of hospital care relative to non-PSRO areas. Individual PSRO effects ranged from an estimated 8.75 percent decline in total days of care per thousand aged Medicare beneficiaries (from 1974 to 1977) to an estimated 1.95 percent increase. In 1977, 145 million was spent on concurrent review for Medicare patients by the 96 PSROs, resulting in an estimated gross savings of about $50 million from the elimination of unnecessary hospital days. The decrease in total days of care was due to a decrease in discharges rather than reductions in lengths of stay.

Evaluation of the MCE component of PSRO review revealed that the number of initial MCE audits has generally increased each quarter since the second quarter of 1975, reaching a cumulative total of over 22,000 by June, 1978. Ten PSROs accounted for 35 percent of all audits. MCEs were evenly distributed between medical and surgical topics. A pilot study tentatively suggested that MCEs, medical care practices conform more closely to established criteria of care.

The 1978 evaluation also included an appraisal and synthesis of the results of 26 routine site assessments of PSRO management performance. PSROs received generally high ratings in management categories such as executive leadership and data system capability; they tended to be rated lower, however, in areas such as the extent of withdrawal of hospital delegation and the conduct of MCEs.

Some of the substudies which contributed to the 1978 evaluation or are included in the 1979 evaluation are described below.

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[1] ORDS' Evaluative Studies Staff also undertakes evaluations of components of most demonstrations. In some cases, the evaluation is a built-in component of the demonstration; in other cases, comprehensive evaluations of related demonstration projects are conducted. These assessments are valuable in the development and coordination of all ORDS research, demonstration, and evaluation activities and in the design of other health agencies' programs.

[2] *Health Care Financing Research Report:* "Professional Standards Review Organization 1978 Program Evaluation. Also available on NTIS No. PB292114/AS.

*PSRO Impact on Medicare Hospital Utilization*

The analysis of PSRO impact on Medicare hospital utilization through the use of Medicare's 100 percent claims data has been the central focus in the PSRO evaluation for all three years. In the 1977 evaluation, 18 active PSROs were compared to 24 inactive PSROs. No differences were found. In the 1978 evaluation, all PSROs were included in the analysis (96 active and 93 inactive). In addition, adjustments were made to the data to account for patient migration.

As in the 1978 evaluation, current results indicate that the PSRO program had a small impact on hospital days of care per 1,000 aged Medicare beneficiaries. While the estimated PSRO effect is in the expected direction, it does not meet standard levels of statistical significance. However, a statistically significant relationship between PSRO impact and the four census regions — Northeast, North Central, West and South — was demonstrated. This finding suggests that a significant PSRO impact exists but that it varies by region, presumably because of factors not yet fully understood associated with the regions. Because of the relationship between regions and PSRO impact, PSRO impacts were estimated separately for each region.

In the 1979 evaluation, all PSROs are included again, as are patient migration adjustments. In addition, long-term care providers and other providers not covered by PSRO review are excluded. Other refinements in the analysis include an examination of ratings of PSROs, and additional control variables, such as the number of beds in teaching hospitals, cost-containment activities, and a more in-depth time trend analysis.

The analysis for the 1979 evaluation report is very similar to that performed for the previous two years. Dependent variables are 1978 days of hospital care per 1000 aged beneficiaries, hospital discharges per 1000 beneficiaries, and average length of hospital stay. Forced-order multiple regression analyses is used to determine if PSRO review has a significant impact in reducing utilization rates. The result of the regression analysis estimates the number of Medicare days of care reduced due to PSRO activity. This estimate is used in the benefit/cost analysis.

*PSRO Impact on Specific Diagnoses and Procedure Categories*

A second utilization study for the 1979 evaluation involves use of the Medicare 20 percent discharge file. Discharges on this file have diagnostic coding, permitting a flexibility which is not possible in the 100 percent claims file. However, the most recent data is a year older (1977) than the 100 percent file. Therefore, this analysis is essentially an extension of the 1978 100 percent analysis. That analysis showed that, relative to inactive PSRO areas, active PSROs reduced days of care per thousand by 1.5 percent. This significant decline meets further examination.

The first step in the 20 percent sample study is the identification of two types of diagnoses and surgical procedures to be examined: those on which PSROs should theoretically have an impact on discharge or average length-of-stay rates and those on which it is unlikely that PSROs should have an impact. Although the emphasis is on discharge rates per thousand aged Medicare beneficiaries, average length of stay is also considered. Approximately five diagnostic and surgical precedures have been selected for each group. The no-impact group will serve as a control for the impact group. A regression analysis is used to test the hypothesis that there has been a greater decrease (or lesser increase) in utilization in active PSROs than in inactive PSROs. The time frame is from 1973 to 1977. Adjustor variables used in the analysis are identical to those used in the 1978 100 percent study, including demographic characteristics and health care supply variables. The dependent variables is the discharge rate, average length of stay, or days-of-care rate, as determined from the diagnosis and procedure selection phase. An important adjustor variable is the pre-PSRO base rate for that diagnosis or procedure.

*Medical Care Evaluation Studies*

Medical care evaluation (MCE) studies serve as the PSRO program's principal mechanisms of quality assurance. The 1977 and 1978 evaluations of the PSRO program included preliminary studies of MCE implementation. They also included changes resulting from MCE audits, as measured by reductions in rates of variation from the criteria of good medical care from initial audit to reaudit.

HCFA contracted with the Rockburn Institute to conduct the assessment of MCEs for the 1979 PSRO evaluation. The Institute has expanded previous assessments by examining variation rate changes for a nationally representative sample of MCEs, estimating costs and benefits of MCEs, conducting a reliability study on a sub-sample of MCEs, and performing case studies of MCE programs in five PSROs.

A sub-study of eight PSROs was undertaken to assess the cost-benefit implications of MCE improvements in quality. Data on changes in variation rates were examined by a panel of physicians to assess benefits in terms of risks avoided and gains in the time patients functioned normally. Data were then assessed by a panel of economists to estimate direct and indirect costs of MCEs and health benefits for use in determining the cost-benefit ratio.

The reliability study involves re-abstracting a small sub-sample of MCEs from the main variation rate study to determine the confidence levels to be attached to findings in the main study.

Five case studies in PSRO quality of care programs describe how PSROs endeavor to maximize the effectiveness of their MCE expenditures. These supplement the variation rate studies which emphasize the effectiveness of the MCE mechanism itself by (1) looking at the role of the PSRO in focusing MCEs on problems in care, ensuring the quality of audits and reaudits, conducting areawide MCEs, and facilitating corrective actions; and (2) by examining the integration of quality assurance with concurrent review and profile analysis.

**Maximum Allowable Cost Program**

On November 15, 1974, the Secretary of DHHS announced a cost containment methodology for the HEW programs that purchase or reimburse for prescribed drugs. This initiative was generated by the three situations that appeared to be contributing to

high drug expenditures: the prices of some chemical entities varied widely, depending upon supplier; most State Medicaid programs reimbursed pharmacists for drugs at levels above the actual acquisition cost of the drug products; and physicians had little price information available for use in making prescriptio decisions.

The Maximum Allowable Cost (MAC) program was implemented in 1975, limiting payments for certain multiple source drugs to the lowest price at which the drug is widely and consistently available, plus a reasonable dispensing fee. The program also established limits upon payments for all prescribed drugs to the estimated acquisition cost (EAC) of the drug product, plus dispensing fee.

The MAC evaluation, conducted by Abt Associaties, Inc., under a contract which was awarded in September, 1978, focuses on the Medicaid outpatient drug benefit program. The Secretary required MAC prices to be set for 70 drugs by the end of 1979. Although the MAC program is applicable to all HEW-financed drug purchases, the focus of this study is only on the HCFA programs involved, and not Public Health Service programs. Medicare is not included, because Medicare does not reimburse for outpatient drugs, and hospitals generally purchase inpatient drugs on a volume basis, at lower than MAC/EAC prices.

The effectiveness of the MAC program is assessed according to the gross savings attributable to MAC and EAC price controls, administrative costs of the programs, increases in dispensing or professional fees associated with lowered reimbursement, increases in the prices of non-MAC drug products, and changes in the use of drugs within therapeutic categories.

The evaluation is divided into two phases. The first phase includes conceptual modeling and development of hypotheses about the behavior of MAC variables, selection and pilot analysis of a single State Medicaid drug program, and development of a cross-sectional/time series econometric model, using aggregate Medicaid drug program data. In Phase II, the analysis will be expanded to four more States, which will allow observation of MAC program performance in different environments. A report on the first phase will be published in Spring of 1980.

**Early and Periodic Screening, Diagnosis, and Treatment Program**

Evaluation of the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program provides a foundation for monitoring and assessing child health and prevention programs nationally. Preliminary efforts to determine the feasibility of a nationwide evaluation were undertaken by Northwestern University under its ORDS policy center grant. First, Northwestern attempted to summarize knowledge about EPSDT gleaned primarily from previous demonstration and evaluation projects. Northwestern recommended strengthening data and case management systems, offering emphasis on case finding and deletion of copayments for pregnant women. In 1980, Northwestern will continue its research on the EPSDT program, including a review of other studies performed to date on EPSDT and a delineation of options for, and components of, an effective EPSDT/Child Health Assurance program (CHAP) demonstration and evaluation strategy.

As a result of this planning effort, a comprehensive program evaluation project will be launched by ORDS in 1981. Some of the major areas on which this project will focus are the overall effectiveness of the Medicaid child health program and the effectiveness of the case finding, case management, and screening components of this program. The project will address the national program, as well as new and current demonstration projects.

**Access, Utilization, and Distribution of Benefits and Costs Under Medicare and Medicaid**

Under this three-year grant awarded in 1978, Syracuse University is examining a variety of issues related to access, distribution of benefits, financing, and supplemental insurance for the Medicare and Medicaid programs. The University is calculating and examining the variation in the benefits and costs of Medicare and Medicaid programs by State from 1967 to 1975. This analysis will replicate and extend previous methodologies, study the sensitivity of the estimates to alternative assumptions, and explain the causes underlying the results.

Another issue being explored under the study is the private health insurance coverage of Medicare and Medicaid eligibles, especially by characteristics such as income levels, age, race, region, and family composition. The 1976 Survey of Income and Education will be used for this task. Related analyses will explore the determinants of private health insurance coverage, focusing on two questions: (1) why do some poor or elderly persons (particularly Medicaid and Medicare eligibles) purchase private health insurance while others rely only on their own resources and public programs to cover medical expenses; and (2) to what extent do Medicare and Medicaid actually substitute for private health insurance coverage?

The study will also focus on two major issues concerning access to care and utilization of services under Medicare and Medicaid. First, it will assess the effect that Medicare and Medicaid have had on the use of medical services. Second, it will analyze the causes of uneven use of medical services by persons eligible for either Medicare or Medicaid. The distributive effects of Medicare and Medicaid by income, race, and age will also be analyzed under the study, as will the financing of the Medicare program and the distributive implications of various alternatives.

**Medicaid Program Analyses**

*State Administration of Medicaid*

Medicaid, the major health care financing program for low-income individuals, is State-administered under Federal guidelines, with program costs shared by the States and Federal Government. Subject to statutory requirements and Federal regulations, States have broad discretion in establishing eligibility criteria, benefit packages, and reimbursement rates.

Up-to-date information on the extent of coverage afforded by Medicaid and other State and local programs and the degree to which Medicaid is meeting the health care needs of the poor is necessary for the design of any national health plan, as well as for improvements in Medicaid coverage. Such information is also necessary to develop a more uniform eligibility and benefit structure for medical assistance to the low-income population and to further the integration of Medicare and Medicaid.

In 1978, ORDS sponsored a study of trends in State administration of Medicaid programs. The descriptive study covered 29 States and identified potential changes and trends in eligibility criteria for Medicaid, compared the use and operation of the spend-down provision for the medically needy among States, reviewed current and potential benefit coverage and reimbursement restrictions, and studied coverage of the poor who are not eligible for Medicaid. The final report, covering current and proposed State Medicaid policies as of late 1978, was submitted in January, 1979.[3]

*Alternative Federal Medicaid Policies*

The Urban Institute received a grant to provide background on policies and practices of various States in their operation of the Medicaid program in selected areas. The study, originally scheduled to run from September 1978 to October 1979, is expected to continue for another year.

During the first year, researchers explored variations in current Medicaid practices with regard to provision of home health services, physician reimbursement, and hospital outpatient and emergency room services. Descriptions of current Medicaid practices in all States and jurisdictions and studies of practices in a sample of States are to be provided for each category. The findings will be used to identify models for the development of uniform Medicaid policy and to assess the impact of the adoption of uniform policies in the States. Primarily qualitative, the analysis will also incorporate existing data to develop the models.

In addition, the researchers are investigating why States are not providing home health services and the major factors that inhibit expansion. These factors include eligibility criteria, reimbursement policies and Title XX policy. The researchers will also conduct and monitor a survey of State administrative and payment practices and reimbursement levels for physician services and compare Medicare and Medicaid reimbursement rates for outpatient and emergency room services.

**Intergovernmental Health Policy**

The George Washington University National Health Policy Forum conducted a one-year study of intergovernmental health policy. Begun in December 1978, this project collected and disseminated information on new State health policies and innovative programs and increased State and Federal awareness of State needs and problems. The study also analyzed State efforts that have special significance to Federal health policies and communicated data to decisionmakers.

The project staff conducted analytical studies on State health initiatives and programs such as Statewide fee schedules and State experiences with catastrophic health insurance programs. In addition, conferences to promote further dialogue between State and Federal officials on major policy issues, State concerns, and study findings are being planned. During the course of this project, bulletins highlighting significant State activities or innovative programs, new health policies, and major program concerns were published.

The project produced reliable, highly visible, and easily accessible analytical information about State experiences in enacting and administering programs of special concern and interest to HCFA. It also broadened Federal and State officials' knowledge about the impact of Federal programs and policies on the States.

**National Health Insurance Studies**

ORDS conducts analyses of national health insurance proposals introduced into Congress to compare overall approaches and selected components, such as coverage, benefit structure, administration, relationship to other government programs, financing, standards for providers, and provisions affecting health and resources. The results are published regularly, as warranted by the changing status of the various national health insurance proposals.

**Policy Centers**

*Center for Health Policy Analysis and Research*

The Center for Health Policy Analysis and Research was established in May, 1978 by the University Health Policy Consortium. Its purpose is to evaluate and conduct relevant policy analyses and research projects for HCFA. The 3 major areas of research—long-term care, health care quality and effectiveness, and regulation and reimbursement—were selected because of their timeliness and special importance to HEW and HCFA. The Center provides HCFA with research papers on different topics selected by HCFA and the Center.

This ongoing analytical resource is supported by a five-year grant based on plans developed by Consortium researchers and policy analysts representing Boston University, the Massachusetts Institute of Technology, and Brandeis University. The health care quality and effectiveness unit conduct analyses on four topics: future policy directions of the PSRO program, management assessment policies of the PSRO program, alternatives for control of unnecessary ancillary service utilization, and issues concerning health technology assessment. Two reports on the 1978 PSRO evaluation were completed in October of 1978; an analysis of HCFA policies on controlling unnecessary ancillary services was completed in December, 1979. The health technology evaluation will be completed in 1980.

[3] *Health Care Financing Grants and Contracts Report:* Chavkin, D.F., "Trends in State Administration of Medicaid Programs."

The long-term care unit emphasizes the nursing home industry, home health care, quality of long-term care, and family responsibility. The regulation and reimbursement unit examines physician reimbursement policies, regulation and reimbursement of health care institutions, evaluation of the Medicare renal disease program, and analysis of the medical supply industry. Projects underway include studies of physician fee negotiations, policies for the control of capital investments in the health sector, and the structure and performance of health industries.

*Center for Health Services and Policy Research*

In October of 1978, Northwestern University's Center for Health Services and Policy Research received a five-year grant to provide multi-disciplinary assistance to HCFA in addressing a number of policy, management, and planning issues. During the first year, the primary focus was on hospital cost containment. Studies were initiated on topics such as hospitals' strategic responses to a constraining environment, the behavior of community hospitals and implications of a revenue cap, understanding the "voluntary effort," the dynamics of volume adjustment, and hospital classification systems. Northwestern also completed a concept paper on physician reimbursement under the End Stage Renal Disease program and an assessment of the validity of the information in 21 reports on 15 Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) demonstrations and evaluations between 1972 and 1978. In addition, the EPSDT study critiqued the efficiency of the objectives of the pending Child Health Assurance Program (CHAP) legislation. In 1980, Northwestern is continuing its investigations into EPSDT and hospital cost containment issues. A major, new project will focus on physician financial incentives and reimbursement policies. Throughout the five-year grant period, long-term studies will be conducted to develop a behavioral model of the short-term hospital, to elucidate the role of the informed consumer in health care decision-making, and to assist ORDS in outlining practices and procedures to obtain high quality information from its evaluation activities.

# Chapter IX
# Quality and Effectiveness

## Introduction

One of the most prevalent yet difficult notions to overcome about health care is that more is better. Research continues to produce evidence that Americans who undergo more surgery, more tests, and more hospitalizations are still not commensurately healthier. They are possibly even less healthy. While clearly not synonomous, cost and quality control are related. In addition to paying the bills for its 45 million beneficiaries, HCFA is responsible for ensuring that the care for which it is paying is appropriate and necessary. The Professional Standards Review Organization (PSRO) program, utilization review for Medicare providers, the Surveillance and Utilization Review systems in States, and provider certification represent several HCFA efforts in quality assurance.

ORDS conducts demonstrations and studies to assist HCFA in improving the quality of care provided to its beneficiaries. These projects address the delivery and outcome of care in different settings. Several studies seek to identify the types and frequency of ineffective or unnecessary services provided to Federal beneficiaries. Others focus on the development of new quality assessment methodologies and their application to different providers of care. Ongoing activities include the development of educational materials to encourage beneficiary participation in treatment decision-making, the assessment of the effectiveness of new medical technologies, the collecton of data on medical practices, the identification of characteristics of intensive care patients, and the instruction of medical students about quality and effectiveness issues through training materials. ORDS also supports evaluations of the effectiveness of the second opinion program for elective surgery and variations in surgery rates in different regions.

## Review and Surveillance Systems

Monitoring inpatient and outpatient care is an integral element of hospital cost containment and quality control. Review systems collect data on patterns of care and utilization, and these are used to identify areas in Federal health delivery programs that require improvement.

Since its inception in 1966, the Medicare program has required participating hospitals to conduct utilization reviews (UR). In accordance with the 1972 amendments to the Social Security Act, Federally-mandated physician peer review groups, called Professional Standards Review Organizations (PSROs), have assumed increasing responsibility for reviewing hospital utilization by Federal beneficiaries. Medicare UR regulations of November, 1974 authorized concurrent review of Medicare hospital admissions and lengths of stay to replace retrospective utilization review. These new regulations were established to convert hospital UR to the methodology developed under the PSRO Program.

During the last decade, a number of State Medicaid agencies have developed sophisticated Surveillance and Utilization Review systems (SUR) to identify possible fraud by providers and to evaluate the appropriateness of the quality and quantity of care received by beneficiaries. These review systems are usually based on information obtained from paid claims. More recently, PSROs, as part of their responsibility for reviewing the necessity and appropriateness of care received by Medicare and Medicaid beneficiaries, are being required to develop profile analysis reports similar to existing SUR systems. ORDS supports several projects designed to assess and identify potential improvements in quality assurance and utilization control mechanisms.

### *United Mine Workers Surveillance and Utilization Review System*

The United Mine Workers (UMW) Health and Retirement Funds has maintained an active quality assurance and cost containment program throughout its 30-year history. One of its more recent innovations is a computerized claims payment system called MINES. This system not only allows the Funds to pay claims more efficiently, but also permits provider fees to be monitored according to specific procedure and specialty groups. Furthermore, it limits the authorized procedures by provider specialty and controls utilization of services rendered by nonparticipating providers. A sub-system of MINES, the Surveillance and Utilization Review System (SUR), has been a major development in the Funds' quality assurance program. SUR enabled the Funds to better evaluate its program, identify problems in provider and beneficiary education, assess policy decisions, and perform research studies. On a quarterly basis, SUR produces aggregated provider profiles that reflect utilization experience on 13 variables for nine provider categories. Implemented in 1977, the system's design was conceptually based on early State Medicaid efforts. It was later redesigned to eliminiate such problems as the quality of diagnostic and procedure coding and accuracy of visit counts and to improve exception identification techniques and the external validity of system variables.

Under a two-year grant awarded in October, 1978, the UMW plans to improve coding methods and data elements on claim forms used to calculate important SUR measures and analyze the validity of certain SUR variables as indicators of provider behavior. Appropriate methodologies for identifying providers with unusual patterns of care will also be developed, with attention focused on reducing providers identified as false positives. Several alternative SUR configurations will be evaluated in terms of operating cost, the number of exceptions identified, the levels of sensitivity and specificity, and associated cost-benefits.

Twenty-seven States currently have operational SUR systems based on the standard SUR system design. Innovations developed through this research may be readily transferred to these States' SUR systems. Although it is unlikely that these innovations will reduce manpower costs in State agencies, they are expected to improve the effectiveness of the available staff. The results of this study will also help in deciding whether to support future designs for SUR systems.

*Oklahoma Utilization Review*

In 1974, HEW published revised UR regulations for Medicare and Medicaid. The medical community in Oklahoma claimed that, if implemented in that State, many rural hospitals would have been unable to comply. In response to this problem, the State, the medical society, and the State hospital association developed the Oklahoma Utilization Review System (OURS) as an alternative UR approach. OURS was originally implemented on a demonstration basis under the authority of Section 1115 of the Social Security Act.

The State Medicaid agency contracted with the Oklahoma Foundation for Peer Review (OFPR) for the implementation and management of OURS. Waivers of Medicaid UR requirements were granted as a part of the demonstration. This project operated between February, 1977 and May, 1978 (the last three months) with no additional Federal funding. In April of 1978, OFPR was designated as the conditional PSRO for Oklahoma and continued using the OURS system to perform the review of care and services.

Since its inception, OURS has provided a computerized retrospective statistical audit of a hospital's performance over a given period of time. The system is based on the concept that such retrospective review can identify appropriate and inappropriate provider/practitioner performance, while minimizing physician administrative time and maximizing physician accountability. Proponents of OURS also maintain that such a system costs less than the traditional PSRO review approach or other forms of UR.

OURS is used to assess each Oklahoma hospital in terms of a specific set of performance measures developed by a body composed of Oklahoma physicians and hospital officers. These measures cover the following areas: frequency of claims denied (for which intermediary or State would have determined that the service was not medically necessary); potential cost of claims totally denied; utilization of pharmacy, laboratory, radiology, and ancillary services; and the average lengths of stay.

ORDS awarded a competitive contract to Systemetrics, Inc. in September, 1979 to evaluate OURS. The evaluation will cover the year prior to implementing OURS, the time during which OURS functioned on a demonstration basis, and the first full year of operation as a conditional PSRO. The contractor will focus on the extent to which OURS has had an impact on utilization of hospital services, Medicare and Medicaid programs expenditures, and administrative costs. This study will also describe the elements of review performed as part of OURS and measure the effectiveness of OURS as a form of utilization review for Medicare and Medicaid.

*Patterns of Utilization Review*

In July, 1975, Boston University initiated a two-phase research project on patterns of hospital UR. The first phase, a questionnaire survey of general hospitals, indicated a growth in the number of concurrent UR programs and a generally favorable attitude toward such programs among responding hospitals. Other facets of the project involved case studies that examined the UR process and attempted to determine the indirect effects of UR, plus multivariate analyses relating UR process measures to hospital characteristics and utilization changes. The second phase of the contract, which ended in December, 1978, involved the development of new techniques for studying inappropriate hospital utilization. Boston University's new methodology attempts to identify inappropriate use of hospital care for a given day in a hospital. In 1980, ORDS is following up on this research with further methodological tests on appropriateness evaluation tools. This approach will be developed until it can supplement the currently used method, which relies on utilization rates based on total days of care.

*Title XIX Quality Control*

Under a three-year grant, the New Hampshire State Division of Welfare developed and demonstrated an Error Prone Profile System (EPPS) for reducing the Medicaid eligibility error rate.[1] The EPPS in New Hampshire was more than twice as effective in pinpointing errors as the previously used method of random selection, with a benefit-to-cost ratio as high as seven to one. New Hampshire has experienced savings of over $1 million annually for a yearly project investment of approximately $250,000.

Completed in January, 1979, this project was partially responsible for the redesign of the Medicaid Quality Control System, a nationwide program to measure the extent and nature of eligibility determination errors in Medicaid. A new sample design concept developed in New Hampshire has been adapted for nationwide use. The software for the EPPS is being made available through HHS' Corrective Action Project to help State agencies reduce their error rates. DHHS' Office of Child Support Enforcement has already adopted the system for assigning priorities to cases for the collection of child support.

*Nosocomial Infection Study*

Nosocomial, or hospital-induced, infection increases the length of stay in hospitals and the utilization of laboratory tests and drugs, consequently increasing the cost of hospital care for approximately five percent of inpatients. Because age is a predisposing factor, the impact on Medicare beneficiaries may be greater than on other hospital patients. The Study of the Efficacy of Nosocomial Infection Control (SENIC), conducted by the Public Health Service Center for Disease Control (CDC), is evaluating the effectiveness on various infection surveillance and control programs in reducing site-specific nosocomial infections. Through an interagency agreement with the Public Health Service, ORDS is participating in the study in two ways. First, ORDS will attempt to identify the impact of nosocomial infections and infection surveillance and control programs on HCFA's cost of providing care to its beneficiaries. This effort will be completed by fall of 1980.

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[1] NTIS No. PB292673/AS: "New Hampshire Title XIX Quality Control Project (Final Report)."

HCFA is also contributing to the cost-benefit analysis of these programs as an active participant on the SENIC Cost Panel. The cost analysis panel, which includes members from the University of North Carolina and CDC, is developing methods for assigning costs and constructing analytic models that will measure the costs of treating site-specific nosocomial infections and estimate the cost of operating infection surveillance and control programs of varying types. These models will also evaluate cost effectiveness for various combinations of personnel and practice approaches.

**Second Surgical Opinions**

In a statement delivered in November, 1977, the Department Under Secretary noted that the overall rate of surgery in the United States increased by 23 percent between 1970 and 1975—far faster than the rate of population.[2] Large, unexplained variations in surgery rates exist between neighboring communities; prepaid health plan enrollees usually undergo fewer elective operations than third-party health insurance plan subscribers. A variety of causes may account for such rate variations: some physicians might be more inclined to recommend certain procedures; areas with large, teaching hospitals or renowned surgeons may have higher total surgery rates or higher rates for specific procedures; regional variations in culture or education levels may influence patient decisions about whether to elect surgery. Yet, the physician may hold even more direct responsibility for rate variations. Fee-for-service physicians benefit economically by providing more services, and surgeons who neglect to follow new developments in medicine may perform procedures considered outmoded by the mainstream physician community.

Because many people do not question the validity of treatment that is recommended to them by their physician, nor do they seek additional information about potential benefits and risks, the physician emerges as the primary decision-maker for serious procedures. Since surgical procedures represent a significant portion of rising health care expenditures, the necessity of some surgery must be questioned. One House Subcommittee estimate, which has been challenged by the American Medical Association and others, placed the rate of unnecessary surgery at 24 percent of all surgical procedures in 1974 (2.38 million operations), at a cost to the public of almost $4 billion.

*Presurgical Screening*

One strategy for avoiding potentially unnecessary surgery is to seek a second opinion from another physician. HCFA has been supporting research at the Cornell University Medical College since 1975 on the impact of voluntary and mandatory second surgical opinion programs on the cost and quality of care. These benefits have been offered through several Taft-Hartley security welfare funds in New York City. The major goals of the study are to measure the utilization patterns and economic savings of the program.

After a second opinion is obtained, the patient is surveyed on up to four different occasions to determine if he or she had later undergone surgery or medical treatment. Preliminary results reveal that between February, 1972 and January, 1978, 7,053 patients obtained second opinions. For the 4,555 patients in the voluntary second opinion group, 33.5 percent of the surgical recommendations were not confirmed by the second opinion. For the 2,498 patients in the mandatory group, 17 percent of the recommendations did not confirm the initial decision.

An economic analysis strategy has been devised to investigate the impact of demographic and diagnostic characteristics on cost and outcomes and to determine the net direct and indirect cost of the mandatory second opinion program. The final report is due in May, 1980.

*Medicare Second Opinion Demonstrations*

Because there remain many unanswered questions concerning the organization and long-term outcome of second opinion programs, ORDS is conducting experiments to help to resolve these issues. Blue Cross/Blue Shield of Greater New York (BCBSGNY) and the Blue Cross/Blue Shield of Michigan (BCBSM) have implemented voluntary second surgical opinion demonstrations for Medicare beneficiaries under contracts awarded in September 1977.[3] Both demonstrations include a waiver of Medicare Part B copayment and deductible requirements for physician and ancillary services, plus an assigned consultant reimbursement rate. As a result, eligible beneficiaries are able to obtain cost-free second and third opinions. The BCBSGNY program covers approximately 1.5 million Medicare beneficiaries living in 17 counties of downstate New York, while the BCBSM program covers about 365,000 Medicare beneficiaries residing in Greater Detroit. Both programs will continue for three years. They operate referral centers and maintain panels of board-certified surgeons who have agreed to render second opinions but not treat patients referred for this service. The demonstrations also extend second opinion coverage to beneficiaries whose first physician recommended against surgery. Both programs are conducting public information campaigns to encourage eligible beneficiaries to participate.

During the first year of the New York demonstration, 2,460 total requests for second/third opinions were received. Of these requests, 1,668 claims were submitted, indicating a consultation completion rate of about 68 percent. Fifty-five of these claims were for third opinions. New York's utilization experience was

[2] Statement by Hale Champion, Under Secretary of Health, Education, and Welfare before the Subcommittee on Oversight and Investigations, Committee on Interstate and Foreign Commerce, Tuesday, November 1, 1977.

[3] For operating protocols for these demonstrations, see NTIS No. PB 290876, "Medicare Second Surgical Opinion Demonstration: Metropolitan Detroit," and NTIS No. PB290873/AS, "Medicare Second Surgical Opinion Demonstration, Greater New York."

more than three times higher than had been anticipated at the start of the demonstration. In the first year of Michigan's program, 135 requests for consultations were received, and 110 appointments were completed. Two of these were for third opinions. Michigan's completion rate was about 90 percent; overall requests for consultations, however, fell below expectations. In order to increase usage, Michigan recently expanded its public information program to include newspaper advertising and brochures mailed to eligible beneficiaries.

*HHS Nationwide Second Opinion Program*

Based on concern about the cost, quality, and frequency of surgery among Federal health insurance beneficiaries, HHS initiated a major effort to encourage the public in general and Federal beneficiaries in particular to seek second opinions on the need for elective surgery. As a means of encouraging participation in second opinion programs, Medicare carriers were instructed to begin reimbursing claims for patient-initiated second opinions.

HCFA also urged State agencies administering medical assistance to play a more active role in eliminating unnecessary surgery. States could accomplish this goal by developing specific programs to encourage and make available such consultations to Medicaid recipients. A 1978 poll indicated problems in some States concerning reimbursement for second opinions received by Medicaid beneficiaries. HCFA initiated a strategy of persuasion rather than regulation, and at the present time, most States are paying for second opinions under Medicaid.

Since September, 1978, HCFA has conducted a nationwide consumer education program to increase awareness of the value of second opinions. As part of this program, the agency has established a national network of organizations capable of providing names of local, qualified physicians willing to consult with individuals seeking such services. These organizations include 30 PSROs, 84 medical societies and 44 insurance companies. HHS is also conducting a media campaign promoting second opinions for elective surgery.

*Massachusetts Mandatory Second Opinion Program*

The Massachusetts Department of Public Welfare received a one-year grant to study the mandatory second surgical opinion program operating in that State. Mandated by the Massachusetts State legislature in 1976, this program requires all Medicaid beneficiaries recommended for any one of eight designated elective procedures to get a second opinion before undergoing surgery. These procedures include tonsillectomy/adenoidectomy, menisectomy, hysterectomy, cholecystectomy, submucous resection, spinal fusion/disc surgery, hemorrhoidectomy, and excision of varicose veins. The analysis focuses on two objectives: to determine the impact of the mandatory second opinion program on the amount of surgery performed and to determine the program's cost-effectiveness.

*Program Evaluation*

Under a contract awarded in October, 1978, Abt Associates, Inc. is determining the effect of second opinions on rates of surgery, associated costs, and quality of care. The contractor is evaluating the experimental Medicare second opinion programs in New York and Michigan, the Medicaid second opinion program in Massachusetts, and HHS' nationwide second opinion effort. Abt Associates will assess the direct and indirect impacts of second opinion programs on surgery rates and on the health status of participating patients. They will also address those factors underlying utilization of second opinion benefits, accounting for differences between physicians' recommendations and analyzing patients' surgical decision-making. Another aspect of the investigation involves the effect of various administrative arrangements used to provide second opinions.

A draft report on the implementation of the HHS nationwide second opinion program was submitted in the summer of 1979. Preliminary analyses of all programs being evaluated available in August, 1980, as will be a report on the status of all second opinion programs in the U.S. based on a mail survey. The final report, due in April, 1982, will include analysis of program administation, the effects of surgery rates, and cost-effectiveness.

**Criteria for Medical Practice**

The burgeoning inventory and frequency of medical procedures therapies and advanced technological treatment modalities require a better understanding of their appropriate use. Until this is achieved, terms such as "unnecessary surgery" will remain subject to challenge. ORDS is involved in several studies to identify and improve criteria and standards used in assessing the need for care.

*Cataract Extraction Study*

Between 1965 and 1975, the rate of cataract extractions increased 150 percent—more rapidly than any other operation under Medicare. During the same period, the number of beneficiaries at risk increased by about 10 percent and the number of surgeons available by about 25 percent. Cataract extraction costs Medicare Part B approximately $150 to $200 million annually, with a similar cost accruing to Part A. Furthermore, a growing number of clinicians believe that beneficiaries are being subjected to surgery too early in the development of their cataracts, resulting in prolonged periods of distorted vision. They argue that the appropriate time to operate is when the vision fails sufficiently for the patient to be grateful for any improvement, even with distortion. In May of 1978, ORDS initiated an intramural project to identify variations in surgical rates over time and by geographical areas based on country-level and PSRO data. Two cross-sectional analyses were conducted for the years 1972 and 1977. The population was limited to persons with senile cataracts who had had a cataract extraction.

Numbers of operations per surgeon were tabulated and the changes in surgical case-load assessed in relation to the beneficiary rates. Interpretation of the findings included changes in access to care, criteria for cataract extraction, and surgical technique.

*Intensive Care Outcomes*

Although many patients consume large amounts of resources in intensive care units each year, few follow-up studies have been done on this type of care. In September of 1978, George Washington University received an ORDS grant to conduct a three-year study of intensive care utilization and outcomes. The University intends to establish a classification of patients admitted to these units, based on clinical, physiological, and therapeutic indices.

Assessments will be made while the patient undergoes treatment, at discharge, and at six and 12 months thereafter. Correlations will be established between use of resources, degrees of illness, and the outcome. Associated costs will form an integral variable in the analysis. A patient classification system that matches disease with resources and outcomes should facilitate identification of treatment modes and appropriate direction of resources.

*Drug Use in Nursing Homes*

The incidence of inappropriate drug prescription and its possible costs in morbidity and mortality, acute hospital admissions, and increased lengths of institutional stay is largely unknown. Moreover, little information exists on the use of drugs in nursing homes, although advanced age and high incidence of chronic disease in the institutionalized population make its members particularly susceptible to dangerous side effects and drug interactions. In 1978, a research team at the Vanderbilt University School of Medicine was awarded a grant to compare the use of drugs among old-age assistance (OAA) intermediate care facility residents and matched non-institutionalized OAA recipients.

This project is based on one year's data collected from the Tennessee Medicaid program claims file. The extensive use of antipsychotic drugs revealed by this study is prima facie evidence that these drugs were abused in some circumstances. Overall, 43 percent of the nursing home cohort received antipsychotic medication; nine percent were chronic users.

Prescribing indices for antipsychotic drugs were calculated for all physicians who cared for members of the study cohort. Correlation was found between prescribing indices and the size of physicians' nursing home practices. Further analyses defined a group of physicians whose prescribing habits make them candidates for a target remedial program. A final report on the project will be submitted in early 1980.

**Malpractice**

The malpractice insurance market has recently become more stabilized and insurance has become more available since a volatile period between 1970 and 1975. However, rising malpractice insurance costs continue to contribute substantially to annual health care expenditures. ORDS staff estimate that insurance premiums for hospitals and physicians totaled between $2 and 2.5 billion in 1977; malpractice premiums and self-insurance payments represented approximately two and a half percent of hospital inpatient costs. Several factors allegedly causing the upward swing in insurance awards and premiums include increased complexity and risk of medical procedures, deterioration of the doctor-patient relationship, shifts in court rules toward strict physician liability, greater willingness of physicians to testify against their peers, the contingency fee system for plaintiff attorneys, insurance company losses in the stock market, and increased patient knowledge of both medical practice and legal remedies.

The malpractice situation poses a major problem to insurers and patients. Many hospitals and physicians realize that they can pass the premium costs onto consumers and third-party payers. In the process of reviewing the state-of-the-art in developing potential demonstration projects in medical malpractice, ORDS determined that Federal programs were being charged approximately 36.2 percent of medical malpractice insurance costs when actual payout for Medicare and Medicaid malpractice costs was 12 percent of the total. ORDS determined that the formula for charging respective payers for the costs of medical malpractice failed to adjust for such factors as life expectancy and future earnings potential, especially among the Medicare group. Consequently, HCFA recommended that the apportionment formula be changed. A notice of proposed rulemaking for Medicare was published on June 1, 1979, to change the apportionment of Medicare reimbursement for malpractice insurance costs to the actual risk incurred by the provider for malpractice payouts for Medicare beneficiaries. HCFA actuaries have estimated that the new regulations on the cost of medical malpractice insurance for hospitals based on actual risk for Medicare and Medicaid patients will save $310 million per year ($270 million for Medicare, and $40 million for Medicaid).

*Economic Analysis of Malpractice*

ORDS is sponsoring a study conducted by the Rand Corporation which focuses on variations in the frequency of malpractice claims, the size of awards, and the level of malpractice insurance premiums. Patient characteristics, State malpractice statutes, and public, judicial and physician attitudes towards risk are being assessed. The study will provide data on the effects of changes in the tort system and regulation of the legal profession and insurance industry. It will be completed in July, 1980.

*Legal Medicine Curriculum*

A two-year grant was awarded to the University of Michigan in August, 1978 to develop an educational program aimed at improving physician understanding of legal medicine and medical jurisprudence. This initiative is based on the premise that awareness of factors contributing to malpractice claims would help physicians contain the rising costs of health care. Few medical schools stress medical-legal technology in their educational curriculum. With input from the

Michigan Medical Schools Council of Deans, the project's investigators are developing a medical-legal curriculum for continuing education, supporting materials for this curriculum, and field-testing and validation criteria. This project is currently being reviewed to determine if course material research findings can be adapted for use in PSRO standards. In addition, the curriculum has been accepted for physician continuing education in Michigan and is being reviewed by the medical associations in other States for possible replication. A number of insurance companies are interested in using the curricula with the intention of offering discounts to physicians who complete the course.

*Medical School Primer*

A grant was awarded in 1978 to the American Association of Medical Colleges (AAMC) to develop a medical school primer on quality assurance and cost containment. This primer will foster quality and cost containment attitudes in the classroom. It will provide faculty and students with an overview of the concepts and resources necessary to implement comprehensive quality assurance and cost containment initiatives.

**Fraud, Abuse, and Waste**

Section 17(d) of Public Law 95-142, the Medicare-Medicaid Anti-Fraud and Abuse Amendments, authorizes the Secretary of DHHS "to develop and demonstrate improved methods of investigation and prosecution of fraud in the provision of care or service under the health programs established by the Social Security Act." Accordingly, HCFA is supporting the development of an anti-fraud and abuse methodology to curtail wasteful program expenditures and to improve quality of care.

The Annual Hospital Report (AHR), described in the Integrated Data System chapter of this report, will highlight potential areas of abuse and waste. AHR specifies cost reporting according to activity or function within hospitals, thereby limiting the ability to shift costs to cost centers experiencing high Medicare utilization or away from routine costs. The comparison of costs per unit of service permits identification of those cost centers with excessive costs, which can then be investigated for possible fraud and abuse. A contract was awarded to the New York Office of the Special Prosecutor to assess the extent of fraud and abuse practices in hospitals. ORDS researchers and statisticians work with the Medicare program staff in cases where serious overpayments to physicians and other providers appear to have occurred. Sampling guidelines have been developed for intermediaries and carriers to estimate the amount of potentially recoverable overpayments. These guidelines have limited the accumulation of large numbers of bills before problems are discovered.

These efforts and those planned for the future will help achieve HHS' overall goal of eliminating fraud, abuse, and waste in its programs.

*New York Fraud and Abuse Investigation*

Under a two-year HCFA contract awarded in September, 1977, the State of New York Department of Law, Office of the Special Prosecutor, investigated allegations of fraud and abuse in New York hospitals participating in the Medicare and Medicaid programs. The project encompassed the review and investigation of at least 50 hospitals representing about 12,000 beds. Half of these were full-scale investigations; the remaining investigations were limited to certain aspects of the hospitals' costs or operations.

The contractor accomplished the following objectives: provided DHHS with reliable information on the extent of fraud in Medicare and Medicaid payments to hospitals; developed an audit manual to be used in conjunction with a fraud investigation; and compiled a manual of investigative and prosecution techniques to be used in hospital investigations and resulting prosecutions. Through this effort, researchers gained field experience in the unified investigation of Medicare and Medicaid costs. The project assisted HHS' cost containment efforts in hospitals by determining the accuracy of figures used to represent incurred hospital costs for services. The project also helped to identify areas of hospital cost in which fraudulent or abusive claims have distorted the operation of reimbursement formulae and those in which changes in reimbursement structure and administration would have substantial cost impact. The Prosecutor's Office employed a team approach in the investigation. Each team includes attorneys, auditors, and investigators, thereby ensuring the active involvement of all required disciplines.

Findings in the New York project suggest that an automated fraud and abuse detection system can be linked to Federally developed reporting requirements to increase the potential of identifying criminal violations. To ensure that the fraud and abuse system and the reporting requirements are linked on an ongoing basis the operation manual produced under the New York project was interfaced with the reporting requirements. There is therefore an ongoing capability to detect potential fraud and abuse situations.

Since the inception of the contract, indictments have been obtained against five individuals. These indictments involve overpayments of approximately $2 million and resulted from four of the hospital investigations.

The manuals for the investigation and prosecution of fraud and abuse in hospitals and the audit review program for hospitals have been developed and will be widely distributed to State agencies. HCFA is planning to conduct a training program for State agencies in the use of these programs and manuals. The experience of the New York project in utilizing demonstration systems to detect overpayments to hospitals can be transferred to and replicated by other States, resulting in a similar costs savings.

# Health Care Financing Research and Demonstrations

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